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TWENTY-FIFTH BIENNIAL REPORT  
OF THE  
NORTH CAROLINA  
STATE BOARD OF HEALTH

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JULY 1, 1932—JUNE 30, 1934

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TWENTY-FIFTH BIENNIAL REPORT

OF THE

NORTH CAROLINA

STATE BOARD OF HEALTH



JULY 1, 1932—JUNE 30, 1934



## MEMBERS OF THE STATE BOARD OF HEALTH

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### Elected by the North Carolina Medical Society

CARL V. REYNOLDS, M.D.

Term expires 1935

G. G. DIXON, M.D.

Term expires 1935

W. T. RAINEY, M.D.

Term expires 1937

S. D. CRAIG, M.D.

Term expires 1937

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### Appointed by the Governor

HUBERT B. HAYWOOD, M.D.

Term expires 1937

H. LEE LARGE, M.D.

Term expires 1935

J. N. JOHNSON, D.D.S.

Term expires 1937

H. G. BAITY, Ph.D.

Term expires 1935

JAMES P. STOWE, Ph.G.

Term expires 1937





## LETTER OF TRANSMITTAL

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RALEIGH, N. C., September 25, 1934.

*His Excellency, J. C. B. EHRLINGHAUS,*

*Governor of North Carolina.*

MY DEAR SIR:—Under authority of Chapter 118, Article 1, Section 7050, Consolidated Statutes of North Carolina, I have to submit to you for transmission to the General Assembly the Biennial Report of the State Board of Health for the period July 1, 1932, to June 30, 1934.

Yours sincerely,

JAMES M. PARROTT,

*Secretary and State Health Officer.*

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## THE CHRONOLOGICAL DEVELOPMENT OF PUBLIC HEALTH WORK IN NORTH CAROLINA

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In the seventies Dr. Thomas Fanning Wood, of Wilmington, caught the vision of the possibilities of public health work to North Carolina. How fully he grasped the far-reaching consequences of his idea, how clearly he saw the ever-growing hosts of lives saved as a result of his vision and inspiration, we shall never know. We do know that the vision never left him, and that under its sway he worked, through the *Medical Journal* which he edited and through the North Carolina State Medical Society until his influence reached the people of the State in their General Assembly of 1877, with the effect that on February 12, 1877, the North Carolina State Board of Health was born. Ours was the twelfth State board of health to be established.

Without treating the development of the newly-established board with that thoroughness that could be termed history, we think it enough to set down here in chronological order the principal events in the life and growth of the North Carolina State Board of Health.

1877. Board created by the General Assembly. Consisted in the beginning of entire State Medical Society. Society acted through a committee. Annual appropriation, \$100.
1878. First educational pamphlet issued. Subject, "Timely Aid for the Drowned and Suffocated." Annual appropriation, \$100.
1879. The General Assembly reconstituted the Board of Health. Made it to consist of nine members: six appointed by the Governor, three elected by the State Medical Society. Term of office, five years. Dr. Thomas F. Wood elected first Secretary of the Board, May 21. Dr. S. S. Satchwell was first President of the Board. Other legislative provisions: (1) Chemical examination of water, and (2) organization of county boards of health, composed of all regular practicing physicians and, in addition, the mayor of the county town, the chairman of the board of county commissioners, and the county surveyor. Four educational pamphlets issued. Subjects: "Disinfection, Drainage, Drinking Water, and Disinfectants"; "Sanitary Engineering"; "Methods of Performing Post-mortem Examinations"; "Limitation and Prevention of Diphtheria." Annual appropriation, \$200.
1881. General Assembly passed a law requiring regulation of vital statistics at annual tax listing; law ineffective. Annual appropriation, \$200.
1885. General Assembly made county boards of health more efficient; allowed printing privileges not to exceed \$250 annually. Annual appropriation, \$2,000.
1886. The Health Bulletin made its appearance in April. Pamphlet on "Care Eyes and Ears," by Dr. Richard H. Lewis, printed and distributed.

1888. Yellow fever epidemic in Florida and refugees to Western North Carolina demonstrated value of a Board of Health to cope with situation. Annual appropriation, \$2,000.
1892. Dr. Thomas F. Wood, the Secretary of the Board, died August 22. Dr. Richard H. Lewis elected Secretary to succeed Dr. Thomas F. Wood. September 7. Annual appropriation, \$2,000.
1893. Legislative provisions: (1) Laws improving the reporting of contagious diseases, (2) the protection of school children from epidemics, (3) protecting the purity of public water supplies, and (4) regulation of common carriers. Legislature provided that Governor appoint five of the nine members of the Board of Health, that the State Medical Society elect four, and that the term of office of the members of the State Board of Health be from five to six years. The \$250 printing limit was removed. Pamphlet on quarantine and disinfection was prepared and reprinted by many of the State papers. Annual appropriation, \$2,000.
1894. A number of public health conferences were arranged and held in different towns of the State. Bulletin was increased from a mailing list of 800 to 1,200. Annual appropriation, \$2,000.
1895. Dr. Albert Anderson and Dr. W. T. Pate were elected bacteriologists for the board. Annual Appropriation, \$2,000.
1896. Board passed a resolution requiring chemical and bacteriological examinations of municipal water supplies. Dr. Venable, of Chapel Hill, undertook the chemical examination, and Drs. Anderson and Pate the bacteriological examination. Board also directed Mr. John C. Chase, the engineer member, to inspect all municipal water plants in the State. Annual appropriation, \$2,000.
1897. General Assembly enacted law requiring county superintendents of health to be elected by county commissioners and reduced term of office to one year. Annual appropriation, \$2,000.
1899. General Assembly improved the laws protecting public water supplies. Smallpox prevailed extensively in the State. Dr. Henry F. Long, and later, on Dr. Long's resignation, Dr. Joshua Tayloe, were employed to travel over the State, consulting with and advising the local sanitary authorities as to proper means for protecting the public. Annual appropriation, \$2,000.
1900. State Board of Agriculture, on request of State Board of Health, agreed to examine samples of water from public water supplies until Board of Health could provide its own examiner. Annual appropriation, \$2,000.
1901. State Board of Embalmers, with representatives of State Board of Health, established. County health work placed in the hands of county sanitary committees composed of county commissioners and two physicians which commissioners elected to serve with them. Term of office of county superintendent of health made two years. Annual appropriation, \$2,000.
1903. General Assembly enacted law permitting Board of Health to charge \$5 for each analysis of a public water supply, this fee to be used

in paying Department of Agriculture for services of examiner. Dr. C. W. Stiles, U. S. P. H. S., before the State Medical Society at Hot Springs, called attention to prevalence of hookworm disease in the South. Dr. J. L. Nicholson and Dr. W. S. Rankin, working under State Board of Health during fall of 1903 and spring of 1904, showed great prevalence of this disease in North Carolina. Annual appropriation, \$2,000.

1904. A stenographer was employed. One hundred and twenty thousand pamphlets on tuberculosis were printed and distributed. There was a renewal and an extension of co-operative work between the Board of Health and the State press, a number of articles dealing with hygienic and sanitary subjects being furnished the papers and published in them. Annual appropriation, \$2,000.
1905. General Assembly established State Laboratory of Hygiene; imposed water tax of \$64 on all public water companies; voted \$600 annually for support of Laboratory. Small appropriation made it necessary for the Department of Agriculture to continue to assist State Board of Health. Annual appropriation, \$2,000.
1906. The North Carolina Association for the Study and Prevention of Tuberculosis was organized. Annual appropriation, \$2,000.
1907. Two thousand dollars appropriated for the State Laboratory of Hygiene. Pasteur treatment provided. State Sanatorium for treatment of tuberculosis founded; \$15,000 appropriated for permanent improvements and \$5,000 for maintenance. A law requiring the separation of tuberculosis prisoners from other prisoners was enacted. Annual appropriation, \$4,000.
1908. January 1, Dr. C. A. Shore became Director of State Laboratory of Hygiene. Annual appropriation, \$4,000.
1909. General Assembly provided for (1) whole-time State Health Officer; (2) collection of vital statistics of towns having a population of 1,000 or over; (3) that all public water companies file plans and specifications of their plants with the State Board of Health, and that the State Board of Health pass necessary rules and regulations for the care of public watersheds and plants and furnish such rules and regulations and other advice to those having charge of public water supplies; (4) that counties provide free diphtheria antitoxin for county indigents, and (5) that the maintenance appropriation for the Sanatorium be increased from \$5,000 to \$7,500, and an additional \$30,000 be granted for permanent improvements. Dr. Richard H. Lewis resigned as Secretary of the Board, and Dr. W. S. Rankin was elected as his successor, beginning his official work July 1. Annual appropriation, \$10,500.
1910. General effort to interest the people and State organizations in public health work. Bulletin increased from 3,500 edition to 10,500 edition. Addresses on public health work delivered to Conference of County Superintendents of Schools, State Federation of Women's Clubs, State Press Association, and Sanitary Sunday observed in April. Dr. John A. Ferrell elected, February, Assistant Secretary

- for Hookworm Eradication; began work under State Board of Health and Rockefeller Sanitary Commission.
1911. Legislature established county boards of health to take the place of the county sanitary committees; county board of health composed of chairman board of county commissioners, county superintendent of schools, mayor of county town, and two physicians selected by the three county officials to serve with them. Legislature also abolished quarantine for smallpox and improved the quarantine laws. One thousand dollars annually appropriated to contract with antitoxin manufacturers for State supply of high-grade diphtheria antitoxin, with result that price of antitoxin was cut to one-fourth former price, saving the citizens of the State over \$30,000 annually. Bulletin increased from 11,500 copies to 20,000 copies each edition; closer co-operation with press of State developed; regular weekly press articles prepared and sent to papers; increase in numbers of popular pamphlets for distribution. Hookworm work this year largely educational through the school forces and investigative through county dispensaries; thousands of children found infected and treated. Strong sentiment began to make itself felt for better health work by counties, four counties employing whole-time county health officers. Guilford County—one of the four—began its work June 1 and was the first county in the United States to inaugurate full-time county health work. Maintenance appropriation for State Sanatorium increased to \$12,500, with \$20,000 voted for permanent improvements. Annual appropriation, \$22,500.
1912. Bulletin increased to 40,000 edition; number of popular pamphlets dealing with different diseases increased; press work improved; educational work of Board along all lines amplified. Secretary of Board of Health called attention of conjoint meeting of State Medical Society and State Board of Health to the relative importance of health problems and the bearing of this subject upon the proper apportionment of health funds; instrumental in passing a resolution to the effect that pellagra was an interstate problem, not a State problem, and requesting the Federal Government to deal with pellagra as a Federal problem; resolution responsible, to considerable extent, for successful effort on part of Hon. John M. Faison's securing Congressional appropriation of \$45,000 for the study of pellagra by the Federal Government. Hookworm work extended and county funds appropriated to supplement State and Rockefeller Foundation for this work. Annual appropriation, \$22,500.
1913. General Assembly passed Model Vital Statistics Law with \$10,000 appropriation for its enforcement. County superintendents of health changed to either county physician or county health officer, depending on whether part-time or full-time service. Educational efforts of Board continued and enlarged. Hookworm work along same line as year before increased in amount. Dr. John A. Ferrell resigned as Assistant Secretary to accept position with the central office of the Rockefeller Sanitary Commission in Washington, D. C. Dr. C. L. Pridgen succeeded Dr. Ferrell. The movement for im-



proved county health work had by this time resulted in ten counties electing whole-time county health officers. The State Sanatorium for Treatment of Tuberculosis turned over by Extra Session of 1913 to the management of State Board of Health. Annual appropriation, \$40,500.

1914. Preceding work of the Board continued. Board of Health took over management of Sanatorium; started out under many difficulties on account of the institution owing many debts and the appropriation being limited. Hookworm work changed to community work directed to the installation of sanitary privies in all homes. Laboratory began to produce and distribute free anti-typhoid vaccine. Dr. C. L. Pridgen resigned as Director Hookworm Eradication, and Dr. W. P. Jacocks succeeded him. Annual appropriation, \$40,500.
1915. General Assembly makes State vital statistics law conform to national model by requiring burial permits in rural communities; enacts legislation permitting county commissioners and towns and cities to appropriate money for support of tuberculosis citizens in State Sanatorium; provides \$15,000 for purchase and building of anti-toxin plant; appropriates \$60,000 for payment of Sanatorium debts and new buildings and other improvements, and \$25,000 annually for maintenance and \$10,000 for extension anti-tuberculosis work. Educational work greatly extended: Bulletin now 47,000; traveling public health exhibit shown at fairs and other assemblages; press work greatly developed through employment of Miss Kate Herring, a journalist for her whole time; stock lectures with lantern slides supplied public speakers in different parts of the State; community soil pollution work under Dr. W. P. Jacocks stops in April, and Bureau of Rural Sanitation, with Dr. G. M. Cooper at its head, succeeds, beginning work May 1. Considerable amount of work done for improvement of prison conditions. The unit system of county health work gets a good start; over 52,000 people given three complete vaccinations against typhoid fever, and medical inspection of schools put on in six counties. Annual appropriation, \$50,500.
1916. North Carolina was admitted to the Registration Area for deaths. To the educational agencies of the Board was added a self-supporting moving picture health show. Many saw this show during the year and, seeing, believed in health work as never before. Bulletin reached 51,000 edition. Co-operation with University in developing a plan and putting on a home post-graduates course in medicine, giving first course to 169 doctors. Put into operation an optional system of hotel inspection, with grading and publishing scores. Continued Bureau of Rural Sanitation, giving three anti-typhoid injections to 48,000, making 100,000 immunized in summers of 1915 and 1916. Did complete medical inspection of six counties and with inspection a large amount of educational work as to sanitary and hygienic living. Secured effort by Federal Children's Bureau to develop unit of child hygiene work, the Bureau using two employees

to work in Cumberland and Swain counties for about eight months. Laboratory of Hygiene buys land and erects its own building. Annual appropriation, \$55,500.

1917. The General Assembly passed the following important health legislation: Chapter 263, entitled "An act to prevent and control the occurrence of certain infectious diseases in North Carolina"; Chapter 244, entitled "An act to provide for the physical examination of the school children of the State at regular intervals"; Chapter 276, entitled "An act for the co-operative and effective development of rural sanitation"; Chapter 257, entitled "An act to prevent blindness in infancy, designating certain powers and duties and otherwise providing for the enforcement of this act"; Chapter 66, entitled "An act to provide for the sanitary inspection and conduct of hotels and restaurants"; Chapter 286, entitled "An act to regulate the treatment, handling and work of prisoners."

Following the enactment of this legislation, administrative machinery, consisting of a Bureau of Epidemiology under the direction of Dr. A. McR. Crouch, a Bureau for the Medical Inspection of Schools under the direction of Dr. Geo. M. Cooper, and a Bureau for County Health Work, under the direction of Dr. B. E. Washburn, was established. Dr. Washburn, an officer of the International Health Board, was loaned to the State without cost, and the International Health Board, in addition to furnishing Dr. Washburn, appropriated \$15,000 annually for County Health Work in accordance with the provisions of Chapter 276.

The United States Public Health Service in February, 1917, detailed Dr. K. E. Miller to study county health work in different sections of the country and to establish for demonstration purposes, in Edgecombe County, department of health on an economic basis easily within the financial reach of the average county.

The State Laboratory of Hygiene moved into its own building January 15, 1917.

The State was admitted to the registration area of the Union for births in January, 1917, the Bureau of the Census having found after investigation that our birth registration was 96 per cent complete.

The special campaign against typhoid fever begun so satisfactorily in 1915 was continued. Free vaccination of the people, however, was interfered with by the difficulty in securing medical officers to do the work, the preparedness program of the Government having caused many physicians and nurses to enter the army and navy; nevertheless, a total of 30,000 citizens of the State were vaccinated as a direct result of the Board's activities, and many thousands of others were vaccinated by the physicians of the State as a result of the educational work of the Board directed to impressing the people with the value of vaccination as a means of prevention for typhoid fever.

In December, 1917, life extension work, which consisted briefly of the free physical examination of interested citizens for the pur-



pose of advising them as to their physical condition and needed hygienic reform and medical treatment, was begun on a county basis. The funds necessary for this work were appropriated partly by the State and partly by the counties in which the life extension work was carried out. Dr. Amzi J. Ellington, of Raleigh, who at the time was a resident physician in the New York City Hospital, was employed and placed in charge of the work. Life extension work was carried out in Vance, Alamance, Lenoir and Robeson counties, and resulted in the full physical examination of 4,000 citizens. This work was very favorably received, and the outlook for its continued development seemed excellent when, with the declaration of war and the call for physicians to enter the military service of the country, Dr. Ellington enlisted in the Medical Corps of the Army. For this reason, and for the further reason that it has been almost impossible to secure health officers during the past two years, the work was not resumed.

The educational work of the State Board of Health consisted in the issuance of eight issues of the Monthly Health Bulletin, each monthly edition amounting to 45,000, and a daily newspaper health article. The Bureau continued its moving picture show exhibit. Arrangements were made for the preparation of newspaper plate, which was sent to and extensively used by 202 papers having a total circulation of 303,000.

The annual appropriation for the State Board of Health was \$60,772.16. The annual appropriation for the State Laboratory of Hygiene was \$12,500, and this, in addition to \$9,087.22 in fees permitted under the laws of the State to be paid to the Laboratory for special work, provided the Laboratory with a total annual budget of \$21,587.22.

1918. Much of the work this year was influenced by the war and had to do with preparedness. The State Health Officer visited Washington, at the request of the Council of National Defense and as chairman of a committee of State Health Officers, on a number of occasions for conferences with respect to preparedness measures, provisions for the control of venereal diseases, arrangements for co-ordinating the control of infectious diseases in the civilian population with their control in cantonments, and to arrange, if possible, with the Public Health Service and the Surgeon-General of the Army for preserving the personnel of State health departments during the war.

Considerable time was given to assisting Major John W. Long, Medical Aide to the Governor, in the work of organizing the Medical Advisory Boards and in interesting physicians in entering the medical service of the Army and Navy, and, later in the year, in inducing the physicians of the State to become members of the Volunteer Medical Service Corps.

Partly as a result of these activities, the Surgeon-General of the Army assigned Major Joseph J. Kinyoun to assist the State Board of Health in the control of communicable diseases, the Board being

under no financial obligation for Major Kinyoun's assistance; and as a result of the successful termination of the activities of various interests looking to a more effective control of venereal diseases, the Kahn-Chamberlain bill passed Congress, and made available to the State of North Carolina, and without condition, \$23,988.61 for venereal disease work.

The Laboratory during this year began the distribution of a high grade of diphtheria antitoxin.

The Bureau of Medical Inspection of Schools, under the direction of Dr. G. M. Cooper, developed, and with a degree of success that we may say established, free dental clinics for the public schools of the State. The Bureau also developed to a successful extent an arrangement in the form of adenoid and tonsil clubs for the practical and economic treatment of public school children suffering from these defects.

The Bureau of Epidemiology employed two third-year medical students, equipped them with motorcycles, and put them into the field to investigate infringements of the quarantine law. Sufficient convictions were obtained to impress the people with the determination of the State to enforce its health laws, and a fairly satisfactory compliance with the laws regarding the reporting of communicable diseases was brought about.

The Bureau of Venereal Diseases, paid for by the Federal appropriation, was established in September under the directorship of Dr. James A. Keiger.

Mr. Warren H. Booker, for the last seven years the efficient director of the Bureau of Engineering and Education, left in September for Red Cross work in France, the work of his bureau being continued, with the exception of the engineering work, by Mr. Ronald B. Wilson, who had been employed earlier in the year to succeed Miss Herring in assisting Mr. Booker with the journalistic work, Miss Herring having been engaged by the War Department for educational work.

Perhaps the most outstanding feature of the health work during the year 1918 was the epidemic of influenza. The epidemic began early in October and caused in October alone 6,056 deaths; in November 2,133 deaths, and in December 1,497 deaths, a total during the last three months of 9,686 deaths.

The annual appropriation for the State Board of Health for 1918 was \$73,210.38.

The annual appropriation for the State Laboratory of Hygiene was \$12,500. The Laboratory, during this year, collected \$8,532.48 in fees for special work, so that the total income of the Laboratory for this year was \$21,032.48.

1919. The General Assembly passed the following important health legislation: Chapter 71, entitled "An act to prevent the spread of disease from insanitary privies"; Chapter 192, entitled "An act to provide for the physical examination and treatment of the school children of the State at regular intervals"; Chapter 206, entitled "An act

for the prevention of venereal diseases"; Chapter 213, entitled "An act to require the provision of adequate sanitary equipment for public schools"; Chapter 214, entitled "An act to obtain reports of persons infected with venereal diseases"; Chapter 215, entitled "An act to amend Chapter 671, Public-Local Laws of 1913, relating to the injunction and abatement of certain nuisances."

The Bureau of Engineering and Inspection was organized in April. The engineering work of the Board had been suspended with the resignation of Mr. Warren H. Booker in September, 1918, Mr. Booker having gone to France to engage in tuberculosis work under the direction of the Red Cross. Between September, 1918, and April, 1919, the engineering problems coming before the Board had been referred and very kindly and effectively taken care of by Col. J. L. Ludlow of Winston-Salem, the engineer member of the Board. Mr. H. E. Miller, an engineer and a graduate of the University of Michigan, was placed in charge of the new bureau, and his brother, Dr. K. E. Miller, of the United States Public Health Service, was detailed by the Service to assist him in the organization of his work. Mr. H. E. Miller and Dr. K. E. Miller spent the spring and summer and a part of the fall in studying various types of privies, in preparing plans for the construction and maintenance of privies, and in preparing the necessary notices and literature to inform the people of the objects and requirements of the new privy law.

On May 1 Dr. A. J. Warren, health officer of Rowan County, was appointed to and accepted the position of Assistant Secretary of the Board.

About the first of the year Miss Herring returned to the educational work of the Board. After a few months she returned to the Federal Service, and Mr. R. B. Wilson, who had left the Board work upon Miss Herring's return, was again offered a place with the Board. Mr. Wilson accepted and assumed his duties on July 1.

On August 1 Dr. A. McK. Crouch, Director of the Bureau of Epidemiology, resigned to accept a position with the city of Wilmington. Dr. F. M. Register, whole-time health officer of Northampton County, succeeded Dr. Crouch as director of the bureau.

Dr. E. J. Wood resigned this year, effective at end of his term, and Governor Bickett appointed Dr. E. J. Tucker of Roxboro for six years term—first dentist to serve on Board.

In September Dr. J. R. Gordon, Director of the Bureau of Vital Statistics since 1914, resigned on account of impaired health, and on October 1st the Bureau of Epidemiology and the Bureau of Vital Statistics were combined and placed under the direction of Dr. Register.

In September Mrs. Kate Brew Vaughan, Director of the Bureau of Infant Hygiene, resigned. The bureau was reorganized under an understanding with the American Red Cross and was enlarged to include, in addition to infant hygiene, the problem of public health nursing, the name of the bureau being changed to that of "Bureau

of Public Health Nursing and Infant Hygiene." Under the agreement with the Red Cross this bureau was to have an available appropriation of \$12,000 a year, half of which was to be furnished by the American Red Cross and half by the State Board of Health. The personnel of the bureau and its plan of work, under the agreement, was made contingent upon the approval of both participating agencies, the American Red Cross and the State Board of Health. In December Miss Rose M. Ehrenfeld took charge of the new bureau and began its organization and work.

On October 1 Dr. Jas. A. Keiger, Director of the Bureau of Venereal Diseases, resigned and Dr. Millard Knowlton was appointed to succeed him.

The typhoid campaign carried on during the summer through previous years was continued in the summer of 1919, using third-year medical students, furnished either with automobile or motorcycles for getting about. Campaigns were carried out in the following counties: Bertie, Cabarrus, Chatham, Chowan, Columbus, Craven, Hertford, Iredell, Johnston, Lincoln, Onslow, Pasquotank, Perquimans, Randolph, Richmond, Rockingham, Stanly, Union, Warren, Wayne. A total of 49,076 were given complete vaccination.

The educational work of the Board consisted of the publication of a 48,000 monthly edition of the Bulletin, and the distribution of about 350,000 pieces of public health literature.

The funds available during this fiscal year amounted to \$198,549.14, of which \$102,301.98 was from State appropriations and the remainder from outside sources.

The appropriation for the State Laboratory of Hygiene for this year was \$28,500; in addition to this, the Laboratory collected in fees for special work, for antitoxin, and in water taxes a total of \$14,344.02, making a total of \$42,844.02 available for work of Laboratory.

1920. During this year there was a Special Session of the General Assembly, lasting twenty days and held in the latter part of August. This Special Session passed an act amending the vital statistics law, making the fees for local registrars 50 cents instead of 25 cents for each certificate properly filed with the State Board of Health.

On January 1 Dr. B. E. Washburn, who had had general direction of the co-operative county health work and who had rendered most acceptable service, was recalled by the International Health Board and detailed to take charge of their interests in Jamaica. Dr. K. E. Miller, of the United States Public Health Service, who had been detailed in January, 1917, to organize a model county health department in Edgecombe County and then, in 1919, to assist his brother, Mr. H. E. Miller, in organizing the work of the new Bureau of Engineering and Inspection, to which was assigned the duty of enforcing the State-wide privy act, succeeded Dr. Washburn as Director of the Bureau of County Health Work.

In January a co-operative effort with the United States Public Health Service and the International Health Board to demonstrate



the possibilities and advantages of the eradication of malaria from certain towns and cities in the eastern part of the State was begun. The terms of co-operation were that the International Health Board and the State Board of Health were to pay one-half of the expenses of the local work and the town or city in which the work was done the other half, the Public Health Service furnishing, as its part, expert supervising personnel. The towns and cities chosen for this work were Goldsboro, Farmville, and Greenville, the budget for each municipality being, respectively: Goldsboro, \$13,670.98; Farmville, \$5,000, and Greenville, \$9,000, a total investment in this work of \$27,670.98. Mr. A. W. Fuchs, Associate Sanitary Engineer, was detailed by the Service to have supervision of the work.

In February Dr. A. J. Warren, Assistant Secretary of the State Board of Health, resigned his position in order to accept the appointment of city health officer of Charlotte, N. C.

In the winter and spring of 1920 the North Carolina Landowners' Association, under the progressive leadership of Mr. W. A. McGirt, of Wilmington, undertook a very extensive educational campaign against malaria, which was carried on through the public schools of thirty-eight counties in eastern North Carolina. A series of county and State prizes for the best essay on malaria by public school children were offered as an inducement to the school children to interest and inform themselves and, indirectly, their parents with regard to the importance of this disease. To make possible this work by the school children 75,000 malaria catechisms, prepared by Dr. H. R. Carter, of the United States Public Health Service, were distributed through the public schools of the eastern part of the State to the school children. Thousands of essays were written, and it is reasonable to believe that the campaign was one of the most successful public health educational attempts yet undertaken.

In June it was found advisable to separate the Bureau of Epidemiology and the Bureau of Vital Statistics which had, on account of the scarcity of health officers, been placed under the directorship of a single bureau chief, Dr. F. M. Register. Dr. Register was appointed Director of the Bureau of Vital Statistics and Dr. J. S. Mitchener was appointed Director of the Bureau of Epidemiology.

In April the Interdepartmental Social Hygiene Board assigned to the State Board of Health several workers for making a study of vice conditions in North Carolina towns and cities and for taking such steps as were found expedient for decreasing prostitution. This group of workers was withdrawn in September on account of differences developing between them and Dr. Knowlton, chief of the Bureau of Venereal Diseases, with the understanding that another group of workers would be assigned to this work at a later date.

In June arrangements were made with the United States Public Health Service and the American Social Hygiene Association for the development of an elaborate educational unit on sex hygiene

and venereal diseases designed to reach rural meetings through the use of picture films and a portable truck. An outfit consisting of several lectures and a moving picture truck began work in Cumberland County in August, and from its very beginning met a most cordial reception and gave every promise of developing into one of the most useful agencies for dealing with the venereal disease problem.

During the year the anti-typhoid vaccination campaign was continued in Alamance, Bladen, Columbus, Duplin, Franklin, Gaston, Harnett and Mecklenburg counties. Co-operative campaigns, in which the counties furnished the working personnel, were also carried on in Anson, Johnston and Rutherford counties. A total of 29,435 citizens have been vaccinated against the disease, and this does not include Columbus County, in which the work was just beginning when this report was completed.

The educational work of the State Board of Health during this year consisted of a 48,000 monthly edition of the State Board of Health Bulletin and the distribution of approximately 350,000 pieces of public health literature.

The funds available during this fiscal year amounted to \$342,284.33, of which \$176,152.61 was State appropriation and the remainder from outside sources.

The appropriation for the State Laboratory of Hygiene for this year was \$25,000; in addition to this, the Laboratory collected in fees for special work, for antitoxin and in water taxes, a total of \$13,698.89, making a total of \$38,698.89 available for the work of the Laboratory. The above amount being insufficient, the Special Session of the Legislature authorized a loan of \$15,000 to enable the work of the Laboratory to be carried on, making a total of \$53,698.89 available for the work of the Laboratory during this year.

1921. The Legislature meeting early in January of this year was asked by the Board to amend the State law restricting the salary of the executive officer of the Board to \$3,000 annually, so as to make the salary \$5,000. Such an amendment was passed. A further request from the Board was that legislation be enacted removing the inspection tax of forty cents from privies coming under the supervision of the Board of Health. Such an amendment to the State-wide Privy Law was also enacted. A bill was introduced in this session of the General Assembly under the initiative of Hon. Emmet H. Bellamy requiring a physical examination of all applicants for marriage and making issuance of license contingent upon the physical qualifications of the applicant. The State Board of Health approved and supported Mr. Bellamy's bill, realizing, as did the author of the bill, that the proposed legislation was but a step in the right direction and was, therefore, rather loosely drawn and left many things to be desired. The bill finally passed in amended form as Chapter 129, Public Laws of 1921.

The Governor appointed Mr. Chas. E. Waddell, an engineer, of Asheville, to succeed Col. J. L. Ludlow as the engineer member of the Board.

Perhaps the most important change inaugurated in State health administration during this year was the adoption of a cost basis for standardizing and measuring the efficiency of public health work in those counties in which the State participated financially. This new principle is fully described in the State Board of Health Bulletin for January, 1922, and a further discussion of cost basis for public health work is unnecessary here except, perhaps, to say that it is apparently at least one of the first attempts to introduce the cost system of industry into government.

The Bureau of Venereal Diseases, in charge of Dr. Millard Knowlton, established as a part of the war-time activities of the Board in co-operation with the Bureau of Venereal Diseases of the Federal Government, was combined with and made a part of the work of the Bureau of Epidemiology, under the general direction of Dr. J. S. Mitchener.

Funds available for the year included: State appropriation, \$275,000; miscellaneous receipts, \$164,184.42; total, \$439,184.42.

1922. In order to bring the records of this department into harmony with those of other State departments, in accordance with the Act of the General Assembly of 1921, changing the fiscal year of the State so as to begin on July 1st each year, this report ends with June 30, 1922. It, therefore, covers a period of nineteen months; one full fiscal year from December 1, 1920, to November 30, 1921; seven months from December 1, 1921, to June 30, 1922. Effective February 1, the American Red Cross Society abrogated the agreement existing since 1919 by which it jointly financed, with the Board of Health, the Bureau of Public Health Nursing and Infant Hygiene. This bureau was reorganized April 1 as the Bureau of Maternity and Infancy, for its maintenance the State receiving \$27,259.66 annually from the United States Government in accordance with the Sheppard-Towner Act for the promotion of the welfare of mothers and infants. Dr. K. P. B. Bonner, of Morehead City, was secured as the director of the reorganized bureau, with Miss Rose M. Ehrenfeld as supervisor of nursing and Mrs. T. W. Bickett in charge of educational work.

The funds available during this period, and their distribution, were seven-twelfths of the amounts set out under the tabulation for 1921.

The appropriation for the State Laboratory of Hygiene for the nineteen months between December 1, 1920, and June 30, 1922, was \$87,083.33; in addition to this, the Laboratory collected in fees for special work, for antitoxin and in water taxes, a total of \$30,872.51, making a total of \$117,955.84 available for the work of the Laboratory.

1923. The General Assembly of 1923 enacted some important and far-reaching legislation affecting public health work in North Carolina. The

most important legislation enacted this year was the act providing for an independent board of directors for the State Sanatorium for Tuberculosis, removing the direction of that institution from the authority of the State Board of Health. Facilities were also provided at the State Sanatorium for the confinement, care, and treatment of tuberculosis convicts. Other legislation included the act to provide for the sanitary manufacture of bedding, the latter act to be enforced by the State Board of Health. The Bureau of Epidemiology was again combined with the Bureau of Vital Statistics.

On March 1 Dr. G. M. Cooper was made Assistant Secretary of the State Board of Health, and Dr. J. S. Mitchener was assigned to the Bureau of Medical Inspection of Schools, after the consolidation of the epidemiology work, which he had directed, with the Bureau of Vital Statistics. Dr. K. E. Miller of the United States Public Health Service was recalled for duty elsewhere.

In order to experiment with the plan of District Health Work, an effort was made to place responsibility for all State Board of Health activities under the direction of district directors attached to the staff of the State Board of Health. This effort was continued throughout the year, but proved to be ineffective and unsatisfactory.

During the year Dr. F. R. Harris resigned from membership on the State Board of Health to become health officer of Vance County. The Board elected Dr. D. A. Stanton, of High Point, to fill the unexpired term of Dr. Harris.

In order to further carry on the important work of malaria control in a number of the counties of the coastal plain area of the State, which work was so effectively commenced in an educational capacity in 1920, the International Health Board was requested to participate in this work and to provide a director for that service. The International Health Board agreed, accepted the invitation, and assigned Dr. H. A. Taylor, of Alabama, to head this division. Pamlico County was selected as headquarters for Dr. Taylor. The cost of this work was borne by the State Board of Health and Pamlico County contributing 40 per cent each, and the International Health Board the remaining 20 per cent. The International Health Board, of course, paid the salary of Dr. Taylor.

In June Dr. J. S. Mitchener resigned as director of the Bureau of Medical Inspection of Schools and Dr. Roy C. Mitchell, who had been doing some special educational field work for the Board, temporarily succeeded Dr. Mitchener.

Early in 1923 Dr. W. S. Rankin, the State Health Officer, was invited by the Committee of Municipal Health Department Practice of the American Public Health Association to become field director for the committee in making a study of municipal health practices in the United States. This was for the purpose of work-



ing out a basis or set of principles through which city health departments could be given classification or grading, and also for the purpose of assisting such departments in their organization work. The request was brought before a special meeting of the executive committee of the Board, and it directed the Secretary to take advantage of the opportunity offered. The Board granted to the Secretary one year's leave of absence, but requested him at the same time to continue in touch as executive officer of the Board with the work of the Board.

On November 1 Dr. Rankin assumed his duties and established official headquarters in New York City for the work of the committee.

The general organization of the executive staff of the board was continued with the Assistant Secretary, Dr. G. M. Cooper, as official head of the staff. Local health work in the eastern half of the State was directed by Dr. H. A. Taylor, and that in the western part of the State by Dr. E. F. Long, who had been assistant to Dr. K. E. Miller as director of county health work. To assist Dr. Taylor in the east, Dr. George Collins, formerly health officer of Mecklenburg County, was employed, and to assist Dr. Long in the western half of the State Dr. C. N. Sisk, formerly health officer of Forsyth County, was employed.

During the year a plan for the more adequate sanitary control of public milk supplies in the State was formulated. This work was undertaken under the direction of the Bureau of Engineering and Inspection, and Mr. Malcolm Lewis was employed to organize this work. Several changes in personnel took place this year. Dr. M. L. Iseley, who had been employed in county health department work, and Dr. Roy C. Mitchell resigned. Miss Rose M. Ehrenfeld also resigned.

1924. During this year Dr. Rankin continued his work with the American Public Health Association until November 1. During this period the work of the Board was directed by Dr. G. M. Cooper, serving as Acting Secretary. On November 1 Dr. Rankin returned, and during that month, under the direction of Dr. Maxey of the United States Public Health Service, a school for health officers was conducted under the auspices of the State Board of Health for one week in Raleigh. This meeting was well attended, and every modern method which might be utilized in the work of a modern public health department was discussed throughout the week.

Dr. M. L. Townsend was placed in charge of the Division of Health Education. Dr. K. P. B. Bonner resigned as director of the Bureau of Maternity and Infancy.

1925. Dr. Rankin resigned, effective June 1, to accept the position of director of the Hospital and Orphan Division of the Duke Foundation. At a meeting of the Board of Health on May 30 Dr. G. M. Cooper was unanimously made Acting Secretary for an indefinite period of time to succeed Dr. Rankin. During the year Dr. E. F. Long

resigned as director of county health work and Dr. C. N. Sisk, who had been assistant to Dr. Long, was placed in charge of county health work, without an assistant.

1926. On June 21 Dr. Charles O'H. Laughinghouse, a member of the Board, was elected permanent Secretary and State Health Officer to fill the unexpired term of Dr. Rankin. Dr. Laughinghouse accepted and took office October 1. Dr. G. M. Cooper, who had for sixteen months administered the work of the Board as Acting State Health Officer, continued with the service and was assigned to the Bureau of Health Education, succeeding Dr. M. L. Townsend, who resigned. On August 6 Dr. Richard H. Lewis died. Dr. Lewis had served as a member of the Board since 1885, and from 1892 to 1909 he served as Secretary of the Board. Since 1909 he had been a member of the executive committee. Dr. Lewis held his membership on the Board by appointment from the Governor. To fill the term of Dr. Lewis, expiring in 1931, Governor McLean appointed Dr. John B. Wright, of Raleigh. Among other reasons assigned for this appointment, the Governor stated that it had been the rule since the Board of Health was established to have at least one of the members of the Board a resident of Raleigh.

When Dr. Laughinghouse resigned, in order to accept the election to the position of State Health Officer by his fellow members on the Board, the remaining members of the Board elected Dr. W. S. Rankin, of Charlotte, former Secretary of the Board, to succeed Dr. Laughinghouse.

1927. There were no changes in personnel or in staff organizations during the year 1927. The most important event occurring this year was the death of Dr. J. Howell Way on September 22. Dr. Way had been a member of the Board for many years and had been President of the Board for a long time. Governor McLean appointed Dr. C. C. Orr, of Asheville, to succeed Dr. Way. At the first meeting of the State Board of Health following the death of Dr. Way, Dr. A. J. Crowell, of Charlotte, was made President of the Board. In April of this year Dr. W. S. Rankin resigned as a member of the Board, and Dr. L. E. McDaniel, of Jackson, was elected by the other members of the Board to succeed Dr. Rankin.
1928. Dr. J. C. Johnson, who had been director of the Oral Hygiene Division, resigned as director of the oral hygiene work of the Board, effective December 31.

During this year a corps of nurses employed in the Maternity and Infancy Division of the Board, one-half of whose expenses were paid by the Federal Government from Sheppard-Towner funds, held midwife classes in about thirty counties of the State. The nurses gave special instruction to midwives in groups, and the county authorities enacted midwife rules and regulations for the control of their practice.

The educational work of the Board was of a high order during this year. A thirty-two page Bulletin was issued monthly, and a

moving picture machine with several films on modern health subjects was exhibited in many sections of the State.

1929. With aid secured from the International Health Board, the Life Extension Division was added to the activities of the Board this year. Dr. Frederick R. Taylor, of High Point, was made director of this division. Dr. Taylor carried this work before the medical profession in all sections of the State.

On January 1 Dr. Ernest A. Branch accepted the appointment as director of the Division of Oral Hygiene to succeed Dr. J. C. Johnson, resigned. Dr. Branch immediately set in motion reorganization plans for the oral hygiene work to include more lectures and more educational demonstration work. Dr. Branch made contacts with several of the colleges of the State and training schools for teachers.

Expenditures for the Board work this year reached the highest peak in the history of the Board, totaling about \$486,000. There were no significant changes, other than those mentioned above, in personnel during this year.

1930. This year marked many significant changes in the affairs of the State Board of Health. Early in the year Dr. C. N. Sisk, director of county health work, resigned. Dr. D. A. Dees succeeded Dr. Sisk as director of county health work. Soon after the resignation of Dr. Sisk, Dr. F. M. Register, director of the Bureau of Vital Statistics, resigned, and the work of that bureau was assigned to Dr. G. M. Cooper, in connection with his work as director of health education. On August 26 Dr. Chas. O'H. Laughinghouse, State Health Officer, died. Soon after his death, in a meeting of the Board, Dr. H. A. Taylor was made Acting State Health Officer. On September 24, following the death of Dr. Laughinghouse, the Board elected Dr. W. P. Jacocks State Health Officer to succeed Dr. Laughinghouse. On November 20 Dr. Cyrus Thompson, for many years a member of the Board, died. On December 16 the Board met and unanimously elected Dr. James M. Parrott, of Kinston as a member to succeed Dr. Thompson.

1931. At the beginning of this year, Doctor Jacocks having declined to accept the position of State Health Officer, to which he had been elected by the Board on September 24, 1930, a bill was introduced in the Legislature abolishing the State Board of Health as then constituted. This bill was passed and became law during the session of 1931. With the enactment of the new law the terms of the members of the old Board were automatically terminated. Under this new law governing the State health work, legislative machinery providing for the establishment of a new organization to carry on the public health work of the State was enacted. The new law differs in many respects from the old law under which the Board had operated for so long. However, the most important provision of the old law was retained; that is, the non-political character of the Board and the retention of the permanency of the policies of the Board, although shortening the terms of office and making it impossible for the Board to become a self-perpetuating machine.

The important provisions in the new law under which the Board of Health work is now operating are as follows: The Governor still retains the power to appoint five of the nine members of the Board, the maximum term of office being four years instead of six, as under the old law, and no member to serve more than two terms, making the total tenure of office of any member not to exceed eight years. The Medical Society of the State of North Carolina still retains the power to elect four of the nine members of the Board, the same conditions as to term of office to obtain here as in those appointed by the Governor. It was recommended to the Governor, although not written into the law, and Governor Gardner accepted the suggestion, that he appoint one member from the State Dental Society and that he appoint a man recommended by that society. This is equivalent to allowing the State Dental Society to name one of the members, but still leaves the balance of power in the hands of the Governor. This seems to be a very satisfactory arrangement.

Another important change is that the Board still elects the State Health Officer, but it can only become effective upon the approval of the Governor. The term of the State Health Officer, along with members of the Board of Health, was restricted to four years, with the privilege of being re-elected one time.

Following the adjournment of the Legislature, the Governor appointed the following named members: Drs. J. T. Burrus, High Point; H. Lee Large, Rocky Mount; J. N. Johnson, Goldsboro, the dental member; Professor H. G. Baity, of the University of North Carolina, and Mr. J. A. Goode, a druggist of Asheville. The State Medical Society at its first meeting after the adjournment of the Legislature elected the following physicians to membership: Drs. James M. Parrott, Kinston; Carl V. Reynolds, Asheville; S. D. Craig, Winston-Salem; L. B. Evans, Windsor.

It will be noted that Dr. Parrott was the only member of the outgoing Board honored with election to membership on the new Board.

On May 28 the new Board met and organized. On that day it unanimously elected Dr. James M. Parrott State Health Officer. Dr. Parrott took the offer under consideration for a period of two weeks. On June 11 the Board met again; Dr. Parrott accepted the election and agreed to assume office on July 1. Dr. Parrott resigned his membership on the Board before being elected to the position of State Health Officer, and under the provisions of the new law the executive committee of the State Medical Society selected Dr. G. G. Dixon, of Ayden, to serve in Dr. Parrott's place until the 1932 meeting of the State Medical Society. It will be noted that this is an important variation from the provisions of the old law. Under the old law the other members of the Board held the authority to name a successor, whether a member resigned or died. Under the new law the Governor names his vacancies in



his list and the executive committee of the State Medical Society is permitted to name a successor to serve only until the first meeting of the State Medical Society follows.

In the meeting of June 11 the new Board found it necessary to eliminate some members of the staff and to make some consolidations, on account of reduced appropriations for the Board work. The services of Dr. D. A. Dees and Mr. R. B. Wilson were dispensed with, effective July 1. The Board reorganized the staff and made many consolidations. The new reorganization follows:

The Board reorganized the work into divisions, making many consolidations and increasing the duties of the directors of each division. Following are the divisions organized: Administrative Officer, Dr. James M. Parrott; Director Division of Laboratories, Dr. C. A. Shore; Director Division of Preventive Medicine, Dr. G. M. Cooper; Director Division of Oral Hygiene, Dr. Ernest A. Branch. The division of County Health Work and Epidemiology was temporarily assigned to Dr. H. A. Taylor, but on August 3 Dr. Taylor resigned and Dr. John H. Hamilton, health officer of New Hanover County, was appointed director of this division. The position of director of Division of Sanitary Engineering was filled on July 14 by electing Mr. Warren H. Booker, who had formerly headed that work, to succeed Mr. H. E. Miller.

The election of Dr. Parrott was received throughout medical and public health circles of the entire State with enthusiasm. Under his able direction the work of the Board during the last half of this year moved with a precision which was gratifying to all the friends of public health work in the State.

1932. The year 1932 was uneventful in public health work. The term of none of the members of the Board expired this year, but all members continued their service just as the Board was constituted at the close of 1931.

The International Health Board awarded a scholarship to Dr. J. C. Knox for a year's special Public Health Work at Harvard and to Dr. R. T. Stimpson for a year's special work in the School of Hygiene at Johns Hopkins.

Following the very favorable reception of Doctor Parrott's annual report at the conjoint session of the State Board of Health and the State Medical Society, which was presented at Winston-Salem in April, the work of the Board was carried on on all fronts with satisfactory results, although on account of reduced appropriations many activities carried on in previous years had to be curtailed or definitely eliminated.

The death rate in North Carolina for 1932 was 9.6 per 1,000 population. This is the lowest death rate ever before recorded in North Carolina. The trend in typhoid fever death rates has been consistently downward from 1914 to 1930. This year there were three more deaths than in 1931, there occurring a total of 158 deaths from typhoid fever. The increase in population, however, offset the slight increase in number, and the rate recorded was

slightly lower than 1931. The cases and deaths from diphtheria this year were also the lowest of any previous year, although progress in the elimination of these diseases has not been so satisfactory as it should have been. Deaths from pellagra continue to show a marked decline.

This year is the third year of the so-called financial depression, and it is too early to record any opinion as to what effect unemployment and decreased income and rather widespread suffering may have on the health of the people of the State. It is not too much to say, however, that the effect will be felt more severely by the children than by any other class of the population.

The infant mortality this year was 66.4 per 1,000 live births. This is so far the best record the State has ever made. The maternal mortality remains high, and indications are that with decreased expenditures for maternal and infant hygiene the rates, particularly for infant deaths, will rise again, pushing the State back among those having an excessive infant death rate.

Expenditures for this year for all purposes by the Board were \$315,276, of which amount \$262,438 represented appropriations. This amount was just a little more than half of the total expenditures made by the Board of Health for the fiscal year ending June 30, 1930.

1933. The event of outstanding importance to the Board of Health this year was the death of Dr. C. A. Shore, which occurred on February 10. For twenty-five years Doctor Shore had been director of the State Laboratory of Hygiene. He had built the work of the laboratory during these years up to a point where its prestige and usefulness was equal to that of any other public health laboratory in America.

Doctor Shore served longer as a member of the executive staff than any other man who has ever been connected with the State Board of Health. He held the confidence and esteem of the medical profession as well as the general public to a marked degree. He was a man of extraordinary ability, and much of the success of the public health work in North Carolina may be attributed to his fine and wholesome service.

Suitable tribute has been paid to Doctor Shore and recorded in other publications of the Board and of the State Medical Society. One event in this connection, however, should be recorded here, and that is that by legislative action all buildings of the State Laboratory of Hygiene are hereinafter to be known as The Clarence A. Shore Laboratory, in memory of his distinctive service.

A few weeks after the death of Doctor Shore, Dr. John H. Hamilton, director of County Health Work, of Vital Statistics, and of Epidemiology, was made director of the laboratory work. Doctor Hamilton, on assuming his duties as director of the Laboratory, resigned the duties of director of County Health Work and of Epidemiology, but retained, however, with the assistance of Dr. R. T. Stimpson as statistician and field director, the Bureau of Vital Statistics. Dr. D. F. Milam, a consultant assigned to the State

Board of Health by the International Health Board, was made acting director of the Bureau of Epidemiology in place of Doctor Hamilton. Doctor Milam had as his assistant Dr. J. C. Knox. Dr. M. V. Ziegler, consultant assigned to the Board by the United States Public Health Service, assumed the duties of acting director of County Health Work to succeed Doctor Hamilton. During this year Mr. W. D. Riley, assigned to the work as Venereal Disease Control Officer by the United States Public Health Service, organized his work and succeeded in making an important contribution to the work of the Venereal Disease Control in North Carolina.

The following changes in personnel of the State Board of Health took place during this year. Dr. W. T. Rainey, of Fayetteville, was elected by the State Medical Society for a four-year term to succeed Dr. L. B. Evans, of Windsor, whose term expired this year. Dr. S. D. Craig was re-elected for a term of four more years. The Governor reappointed Dr. J. N. Johnson, dental member of the Board, for another term, which will expire in 1937. The Governor appointed Dr. Hubert B. Haywood, of Raleigh, for a four-year term, to take the place of Dr. J. T. Burrus, of High Point. The Governor also appointed Mr. James P. Stowe, a druggist of Charlotte, for a four-year term, expiring in 1937. Mr. Stowe succeeded Mr. J. A. Goode, a druggist of Asheville. Dr. Carl V. Reynolds succeeded Dr. Burrus as President of the Board. On July 1 Drs. Knox and Stimpson returned to the Board work and resumed their places after satisfactorily concluding their year's scholarship work at Harvard and Hopkins, respectively.

The year was not marked by any widespread outbreak of epidemic disease, and, notwithstanding a continuation of the financial depression, the work of the State Board of Health held up fairly well. The appropriations being lower this year than before for many years, much of the personnel service had to be reduced. A material reduction in State aid to County Health Work caused considerable contraction of the activities of County Health Department Work, but for the most part the morale of State Board of Health employees as well as the county health employees has held up remarkably well.

The Legislature, meeting for an extended session following its opening in January, made drastic reductions in appropriations to all State health work and reduced the salaries of all State health employees. This was said to be necessary in order to balance the State budget and to maintain the State's credit.

The total expenditures for the Board of Health this year, that is, for the fiscal year ending June 30, were \$291,786. Of this amount \$225,274 was appropriated by the Legislature. It will be noted that this sum was less than half of that appropriated and spent for the fiscal year ending June 30, 1930.

A detailed account of the organization work of each one of the divisions covering the activities of this biennium will be found in the pages to follow.

## REPORT OF THE SECRETARY-TREASURER AND STATE HEALTH OFFICER

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Since submitting my report as Secretary-Treasurer and State Health Officer for the biennium ending June 30, 1932, this Department has suffered from the results of lessened appropriations to a marked degree.

During the calendar year ending December 30, 1933, the actual death rate in North Carolina was 9.3 as against a rate of 9.6 in 1932. This was the lowest death rate per one thousand population from all causes which the State has ever experienced, and easily one of the lowest, if not the lowest, of any State in the Union.

It is with deep regret that it is necessary to report that the death rate has gone up for the first six months of 1934 to 11.3 (provisional). It is not possible at this writing to indicate whether this increase will be sustained, and if so, to what degree.

The Secretary cannot help but feel a very grave concern at the prospects for the immediate future. The Department is undermanned and greatly needs an enlarged appropriation to provide the necessary personnel, to pay adequate salaries to employees, directors of the divisions, and to extend its activities in several essential ways. The State cannot hope to continue to get the present high-classed services much longer for so small an amount of funds now available.

Had it not been for the assistance rendered the Department by the CWA and its successor, the ERA, the Rockefeller Foundation, the U. S. Public Health Service, and other friends, the health conditions in North Carolina would have been decidedly worse. We have no right to assume that we can continue to receive this outside-agency support. In fact, a good deal of it is already being withdrawn.

The Secretary hastens to express his admiration for the heroism of the recent General Assembly, remembering, as he does, the deplorable financial situation which confronted the 1933 Legislature and the terrible economic conditions of the State. He, in retrospect, as he was at the time, is profoundly impressed with the patriotism and courage of that General Assembly, of Governor Ehringhaus and the Budget service. The people of the State are under obligations to them for the really fine spirit and constructive attitude which they took regarding the State Department of Health.

At the quarterly meeting of the Board on July 8, 1932, a committee composed of Dr. H. Lee Large, Rocky Mount, N. C.; Dr. H. G. Baity, Chapel Hill, N. C., of the Board, and Dr. John H. Hamilton and Mr. Warren H. Booker of the staff, were appointed to study Industrial Hygiene in North Carolina.

At this meeting a committee composed of Dr. G. G. Dixon, Ayden, N. C.; Dr. Carl V. Reynolds, Asheville, N. C., and Dr. J. N. Johnson, Goldsboro, N. C., was also appointed to consider the syphilis problem in North Carolina. This committee, with the valuable assistance of Mr. William D. Riley, Regional Consultant of the U. S. Public Health Service, made a comprehensive study and submitted a very complete report.

The Board passed the following resolution unanimously:



*"Resolved, That all students or inmates of educational or penal and all other State institutions be immunized against typhoid fever, para-typhoid fever, smallpox and diphtheria under the age of ten years, unless certificate or other satisfactory evidence is furnished of successful vaccination within three years, and that immunization to begin not less than one week after admission."*

After discussion, it was moved and passed unanimously that the Sanitary Engineering Department conform strictly with the Standard Milk Ordinance.

Mr. Edward Dunn, of Asheville, N. C., was elected a member of the Board of Examiners of the N. C. Funeral Directors and Embalmers' Association for a term of five years, in accordance with the request of the Association through its Secretary.

The Board adopted a plan submitted by the Secretary for use in any emergency which might arise of a State-wide and disastrous character which would or might involve the health of the people. The wisdom of this action was amply demonstrated September, 1933, when certain portions of Eastern Carolina were visited by a terrific storm. The State Board of Health was the first on the ground, traveling over dangerous and obstructed highways, using boats in many instances, to reach the stricken areas to administer typhoid vaccines, tetanus antitoxins, and other biologics, to the inhabitants of the sparsely settled points of the eastern sections. The promptness and efficiency of this service was of outstanding value.

At the quarterly meeting of the Board, October 14, 1932, the Secretary reported that Dr. J. C. Knox of the Bureau of Epidemiology had been granted a scholarship by the Rockefeller Foundation for nine months study at Harvard University, and requested that a leave of absence, without pay, be granted Dr. Knox for this, beginning September 15th. The Board approved.

The Secretary also reported that Dr. R. T. Stimpson, assistant in the Division of Vital Statistics, had been granted a scholarship by the Rockefeller Foundation for a nine months study at Johns Hopkins University, and requested that a leave of absence, without pay, be granted Dr. Stimpson for this study. The Board approved.

At the quarterly meeting of the Board, January 26, 1933, Dr. G. G. Dixon, a member of the Board and Chairman of the Syphilis Control Committee, submitted a further report on the activities of his committee which was challenging and of unusual value.

On April 19, 1933, the Board met in its annual session in Raleigh. The State Health Officer was directed to allocate funds for State Aid on the basis of efficiency and needs of service rendered in counties, and further increased the qualifications of health officers to whose services the Board would allocate funds in the future. This was definitely an advanced and constructive step, and has since proved of outstanding value.

The Board approved certain Rules and Regulations Governing the Sanitary Management of Barber Shops, Barber Schools and Barber Colleges in the State with a definite understanding that it did so as relates to sanitary features only, and that the Department of Health assumed no responsibility for the enforcement of these rules. A copy of the rules are on file in the office.

The Secretary of the State Board of Health officially advised the Board of the death of the beloved Dr. Clarence A. Shore, long-time Director of the

State Laboratory of Hygiene. It is notable that the General Assembly of North Carolina which was in session in the winter and spring of 1933 officially designated the State Laboratory building as "Clarence A. Shore State Laboratory of Hygiene Building." The dedication exercises were held on April 18, 1933, and the addresses by his Excellency, Governor Ehringhaus, Dr. G. M. Cooper, President Burrus of the Board of Health and others, together with minutes of the meeting and the engraving on the bronze plate, were ordered printed in the Minutes, to which reference is made.

The General Assembly of 1933 passed a bill permitting the State Department of Health to redistrict the State into new Vital Statistics areas and to require only one report for stillbirths.

The Secretary reported that because of lack of funds the Department could not make a complete inspection of State and public institutions annually as required by law. However, at a later date, the State Health Officer addressed a letter to the directors or executive officers and chairmen of boards of county commissioners requesting their co-operation. This letter met with a hearty response. Of course, the necessity for this procedure is to be deeply regretted and sooner or later will bring more or less disastrous results.

At the quarterly meeting on June 20, 1933, the Board approved the transfer of the Bureau of Vital Statistics to the Division of Laboratories.

At the quarterly meeting of the Board, August 14, 1933, Dr. W. T. Rainey, Fayetteville, N. C., was installed as a member of the Board for a term of four years beginning July 1, 1933. His oath was properly signed and filed in the archives. He was elected by the State Medical Society in April. Dr. Rainey succeeded Dr. L. B. Evans who rendered such satisfactory and co-operative service. Dr. Evans was a faithful and serviceable member. His activities were marked by loyalty and efficiency.

At this meeting the Secretary had to report the outbreak of typhoid at two or three points in the State; however, he was glad to advise that in each instance the disease was quickly handled and confined to its original locations.

The State Health Officer was glad to advise that the Rockefeller Foundation had allocated to this Department \$10,000 for County Health Work for the year beginning July 1, 1933.

The following regulation, known as "Regulation 13—Methods of Isolation of Carriers of Typhoid Fever and Para-Typhoid Fever," was passed unanimously:

1. The health officer or quarantine officer shall give such complete instructions as may be provided by the State Health Officer to all such carriers concerning regulations and precautions necessary to protect others.

2. No known typhoid or para-typhoid carrier shall be permitted to live on a watershed from which public water supply is derived, nor shall engage in any occupation requiring the handling of milk or food or drink intended for consumption by others; and no owner of any property located on any public watershed from which public water supply is derived, or agent of such owner, shall knowingly rent or lease such property to a known typhoid fever or para-typhoid fever carrier when, in the opinion of the State Health Officer, such residence or occupation or rental is a menace to the public health.

3. The State Board of Health shall be notified when carriers are discovered, giving the name, age, sex, color, occupation and address of each.

4. The local health officer or quarantine officer shall visit all known carriers in his jurisdiction at least once quarterly in order to determine whether these regulations are carried out.

5. A carrier shall not change his or her address without notifying the health officer or quarantine officer.

6. The health officer or quarantine officer shall notify the State Board of Health immediately in case said carrier changes his or her address.

7. No carrier shall be released from under public health supervision until the accepted methods of examination indicate that the carrier state no longer exists.

The Board instructed the Secretary to add psittacosis to the list of communicable diseases. The following Rules and Regulations Governing Psittacosis were adopted:

### PSITTACOSIS

#### Rules and Regulations for the Control of Psittacosis

By virtue of the authority vested in the North Carolina State Board of Health under Consolidated Statutes, Chapter 118, Public Health, Article 9, Section 7151 to Section 7155, the State Board of Health, on August 15, 1933, declared psittacosis to be an infectious disease, and subject to laws and regulations governing notification and methods for dealing with sources and modes of infections of such diseases.

1. NOTIFICATION: Cases of psittacosis must be reported within twenty-four hours—preferably by telephone or telegraph.

2. ISOLATION: The patient sick with psittacosis shall be isolated in a separate room and no person other than the local health officer or his representative or a representative of the State Board of Health, the attending physician, the nurse, or attendant, shall be permitted to enter the room in which the patient is isolated or quarantined.

In the event a friend or member of the family should desire to be with the sick one, such a person shall remain in quarantine for such a time as the local or State Health Department may determine.

Concurrent disinfection of all discharges and articles must be carried out and terminal disinfection instituted.

3. QUARANTINE: The premises in which the patient is isolated are to be placarded and quarantine instituted until complete clinical recovery or death of patient.

4. CONTACTS: It is advised that household contacts be kept in quarantine for at least five days following last exposure and under close observation for at least three weeks. The exact incubation period of psittacosis is unknown but can be very long and drawn out. Less intimate contacts should be kept under careful observation as far as possible.

5. BIRDS: Canaries, macaws, parrots, parakeets, and other psittacine birds that have been exposed to psittacosis either through birds known to be infected with psittacosis or having been associated with birds proven to be probable sources of human cases, must be killed and burned promptly. This measure is to be ordered either by the city, county, or State Department of Health in each case and no indemnity provided.

Birds not of the psittacine family are all to be regarded as potentially dangerous when they have been exposed to psittacosis, and after exposure must be kept under close supervision and quarantine for a period of not less than three weeks and then released only if no sign of psittacosis has occurred amongst them.

6. SHIPMENT: Shipment of birds into North Carolina by any means of transportation whatever shall conform to the regulations of the Federal Government covering this point.

The above Rules and Regulations were adopted and approved by the Executive Committee of the State Board of Health in session on December 5, 1933, and ordered promulgated.

The Board directed the Secretary to express and specifically thank Mr. Kellogg for the fine service which he rendered the Laboratory of Hygiene after the death of Dr. Shore.

The request of the N. C. Funeral Directors and Embalmers' Association that Mr. Albert T. Willis, New Bern, N. C., be elected to the Embalmers Board was passed unanimously.

The North Carolina Board of Cosmetic Art presented its rules and regulations for approval. This the Board did, with the definite statement that its approval applied to sanitary features only and that the Board of Health did not assume any responsibility for the enforcement of the rules.

Dr. M. V. Ziegler submitted a report of the survey of the Indians in the western part of the State. This was regarded by the Board as an outstanding document, and it was ordered to be bound and that it should be carefully preserved. The Secretary was authorized to give a few copies to interested friends.

The Board approved the designation by the Secretary and the Executive Committee of Dr. J. C. Knox as Assistant Epidemiologist and Dr. R. T. Stimpson as Assistant to the Director of Vital Statistics. The term of Dr. Knox began Monday, July 3, 1933, and that of Dr. Stimpson on Monday, July 17, 1933. Doctors Knox and Stimpson completed their course of training through the courtesy of the Rockefeller Foundation in June, 1933.

The Secretary advised the Board that, acting in accordance with its instructions at the April 19th meeting, the Executive Committee had formally approved the designation of Dr. John H. Hamilton as Director of the Laboratory to succeed the late Doctor Shore, the same to be effective as of April 16, 1933.

On November 13, 1933, the Board convened in quarterly session in the offices of the Department. Dr. Hubert B. Haywood, Raleigh, N. C.; Dr. J. N. Johnson, Goldsboro, N. C., and Mr. James P. Stowe, Charlotte, N. C., presented themselves for installation as appointees by His Excellency, Governor Ehringhaus, as members of the Board for a period of four years beginning as of July 1, 1933, and Dr. S. D. Craig, Winston-Salem, N. C., who was elected by the State Medical Society, to succeed himself for a term of four years beginning July 1, 1933, also presented his credentials. The oaths of offices of each were properly signed and filed in the archives.

The term of Dr. J. T. Burrus as a member of the Board having expired, the Board elected Dr. Carl V. Reynolds, Asheville, N. C., as President, and Dr. S. D. Craig, Winston-Salem, N. C., was elected Vice-President to fill the vacancy caused by the elevation of Dr. Reynolds to the presidency. The Board expressed its regrets because of the retirement of Dr. Burrus and Mr. J. A. Goode, Asheville, N. C., and directed the Secretary to advise each of its high regard and its regret at losing their most valuable services, and to Dr. Burrus especially for the special assistance which he rendered the Board as its President.

The Executive Committee met and elected Dr. S. D. Craig of Winston-Salem, as its Chairman.



The Department took a definite advanced step at its quarterly meeting on January 29, 1934, in directing the State Health Officer to use every effort to make Oral Hygiene an integral part of every county health program.

Mr. R. P. Branch and Mr. Whitney of the N. C. Board of Barber Examiners, requested certain changes in sanitary regulations. This was referred to the Secretary with the request that he reapprove the same in accordance with their desires in so far as the Department could do, being mindful of its obligations.

The Board took another definite forward step when it appointed a committee of three to study the problem of Civil Service and retirement pay for employees of the Board and for the extension of the State-supported health program throughout North Carolina. The committee was composed of Dr. G. G. Dixon, Dr. J. N. Johnson, and Dr. Hubert B. Haywood.

The Secretary reported that the Rockefeller Foundation had granted scholarships as of the middle of September, 1933, for a nine months study to Dr. C. H. White, Dr. R. E. Fox, and Dr. W. P. Richardson.

The Executive Committee on February 14, 1934, among many other things which it considered, directed the transfer of the responsibility of immunization campaigns to the Division of Epidemiology, and approved the changes in the rules and regulations governing barbers, barber shops, etc., which had been prepared by the Secretary under the direction of the Board at its January meeting.

During the winter of 1933 and 1934 the Division of Preventive Medicine made a very strenuous effort to enlist the physicians of the State in its efforts to reduce maternal and infant mortality of the commonwealth. In this Dr. G. M. Cooper, Director of the Division, was ably assisted by Dr. M. V. Ziegler and, in a minor way, by the State Health Officer. As a result of the numerous conferences a number of representative physicians who were selected at various group meetings met in Raleigh and perfected plans, reference to which is made in the report of the Director of the Division of Preventive Medicine.

The State Health Officer was ill when the Board met in its annual session at Pinehurst on May 1, 1934. Dr. G. M. Cooper was designated by Dr. Parrott, the Secretary, as Acting State Health Officer and to conduct this meeting. The Board approved Dr. Parrott's action in this.

The Board passed the following resolution relative to the absence of Dr. Parrott from his official duties:

*"Resolved, That the State Board of Health, in session assembled at the Carolina Hotel, Pinehurst, May 1, 1934, feels that it would be wise for Dr. Parrott to take a leave of absence from all official duties for a complete rest for a period of not less than ninety days or more, under the direction of his physician, this leave of absence to be continued at full pay until Dr. Parrott is able to return to his regular duties.*

The Board takes this opportunity to convey to Dr. Parrott expressions of its appreciation of his value and service to the State Board of Health and the absolute necessity of his conserving his physical strength for future service in behalf of the public health."

The foregoing resolution was unanimously adopted.

Dr. Cooper, by request of the State Health Officer, Dr. Parrott, presented resolutions relative to State Aid for State-wide health work, immunization activities, and maternity and infancy service.

Dr. L. B. McBrayer, Secretary of the State Medical Society, shortly after the adjournment of the State Medical Society, advised that the Executive Committee had passed the following motions:

(a) Approved the suggestion of Dr. Parrott that \$350,000 be made available by the State as a special State Aid fund for health work throughout the commonwealth.

(b) Had complied with the request of the Health Department and appointed the following Committee on Immunization matters:

Dr. J. Street Brewer, Chairman  
Dr. H. H. Johnson  
Dr. Forest M. Houser

(c) The following were appointed as a Committee on Maternity and Infancy:

Dr. H. H. Johnson, Chairman  
Dr. J. Street Brewer  
Dr. Forest M. Houser

The action of the State Medical Society in complying with the above is simply an additional confirmation of the oft-repeated statement that without the support and aid of the physicians in North Carolina, and its fine dentists, it would be impossible to operate an efficient State Health Department.

As further evidence sustaining the above we would like to include at this time the following resolution adopted by the North Carolina Dental Society assembled in Wilmington, N. C., at their 1934 meeting:

*"Resolved*, That the North Carolina Dental Society wishes to go on record as heartily endorsing the entire program of Mouth Health Education as now being conducted by the State Board of Health and organized dentistry in North Carolina, wishes to go on record as appreciating the co-operation of the State Board in assisting in the successful Mouth Health Survey unselfishly conducted by the members of this organization. This survey has shown a startling need of even greater activity in Mouth Health Education, and this society pledges its whole-hearted co-operation in support of such enlarged program as the State Board of Health is financially able to support and foster. Inasmuch as the Mouth Health Program in this State is receiving nation-wide admiration and attention, we must not turn back but rather go forward.

We wish to thank Dr. J. N. Johnson, dental member of the State Board of Health, for his untiring activity in his official capacity, who has given generously of his time, and to ask the secretary of this society to send a telegram to Dr. J. M. Parrott, Secretary of the State Board of Health, at his home in Kinston, expressing our appreciation for his co-operation and wishing for him a speedy recovery."

It is with great regret that the Secretary announces that the Rockefeller Foundation had to withdraw Dr. D. F. Milam as of June 19, 1934. Dr. Milam's services were distinctly valuable, and the Board expresses its deep appreciation and obligation to Dr. Milam for coming and to the Foundation for sending him to us for approximately two years.

During the biennium the Executive Committee held frequent meetings and rendered most valued assistance.

Dr. Hubert B. Haywood, of Raleigh, has been of especial help and aid to the Department and the Secretary.

## DIVISION OF PREVENTIVE MEDICINE

The personnel of this division is composed of one medical director, one stenographer, one special clerk in the Division of Maternity and Infancy, and two expert mailing clerks, who send out all the literature of the Board and who handle the mimeograph and multigraph machines, and eight trained nurses, who do field work all the time in the divisions of School Health Supervision and Midwife Control Work. The work of this division covers the following activities: a Department of Medical School Inspection or School Health Supervision, a Department of Maternity and Infancy, a Department of Health Education, and the medical correspondence or Personal Health Service of the Board. The director has administrative responsibility for all these departments.

### SCHOOL HEALTH SERVICE

This service was organized in 1918 by this bureau and has been constantly functioning ever since. During the two-year period ending June 30, 1934, the eight nurses engaged in this work inspected the school children in 47 counties, covering every section in North Carolina. This work has been confined to the smaller and more remote counties for the most part which have no organized health departments. Some of the counties they have worked in are large and wealthy counties but the authorities of which have never undertaken the organization of any form of whole-time health work. These nurses visit every school in such counties for both races. They inspect the children, record their findings on suitable cards, which are made permanent records in the offices of county superintendents of schools. Suggestions are sent to the parents of such children as they find who need operative or medical or dental treatment for the removal of common physical defects. They have lectured to the children, grade by grade or in groups, and have presented their findings to assembled teacher groups in all the counties in which they have worked. They publish their findings in the local newspapers, and they have co-operated with the local physicians and dentists as well as the teachers and parents in undertaking to get follow-up medical or surgical treatment done when necessary. They have imparted instruction as to ordinary sanitary measures, and have given out information about the prevention of the spread of communicable diseases. Their work has been pronounced as invaluable by competent, disinterested authorities. In this work during the period they have inspected a total of 1,821 schools and 163,713 children. They have reported medical, surgical, or dental treatment for 11,054 children during the period. A more detailed report follows:

Number counties worked.....	47
Number schools visited .....	1,821
Number children examined .....	163,713
Number children found to be immunized.....	<div style="display: inline-block; vertical-align: middle;"> <div style="font-size: 3em; vertical-align: middle; line-height: 1;">{</div> <div style="display: inline-block; vertical-align: middle;"> <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <div>Diphtheria .....</div> <div>42,429</div> </div> <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <div>Smallpox .....</div> <div>38,456</div> </div> <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <div>Typhoid fever .....</div> <div>59,841</div> </div> </div> </div>

Number children found defective .....	132,540																				
Number children having defects .....	<table> <tr><td>Nutrition .....</td><td>16,384</td></tr> <tr><td>Hearing .....</td><td>2,136</td></tr> <tr><td>Vision .....</td><td>15,473</td></tr> <tr><td>Teeth .....</td><td>67,197</td></tr> <tr><td>Throat .....</td><td>72,944</td></tr> <tr><td>Breathing .....</td><td>29,764</td></tr> <tr><td>Posture .....</td><td>10,338</td></tr> <tr><td>Orthopedic .....</td><td>951</td></tr> <tr><td>Skin .....</td><td>6,787</td></tr> <tr><td>Other .....</td><td>24,347</td></tr> </table>	Nutrition .....	16,384	Hearing .....	2,136	Vision .....	15,473	Teeth .....	67,197	Throat .....	72,944	Breathing .....	29,764	Posture .....	10,338	Orthopedic .....	951	Skin .....	6,787	Other .....	24,347
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Skin .....	6,787																				
Other .....	24,347																				
Number children with tonsils removed.....	11,054																				
Number children 10 per cent or more under average weight.....	39,217																				
Number children 20 per cent or more over average weight.....	2,497																				

### MATERNAL AND INFANT HYGIENE SERVICE

In this department we send out a series of nine prenatal letters to expectant mothers in response to requests from the mothers themselves, their families, or their physicians or the midwives. These letters contain confidential information direct from this department to the mother. Much helpful advice is contained in this series of letters. In addition to the letters we send to each one of these inquiring expectant mothers a specially prepared pamphlet known as "Prenatal Care." This is a pamphlet prepared by the Federal Government at Washington and contains authentic and scientific information written in language that the most ignorant mother can understand. In addition to the foregoing the director of the bureau writes numerous letters answering questions of a general character sent in by expectant mothers.

This service is in no way devised to take the place of physicians, but is calculated to assist the physicians in service to the patient where they have a physician. Its most valuable field, however, is among the people who do not have the services of a physician at childbirth. About one-third of the mothers giving birth to babies in the State during this period were attended by midwives, and never made contact with a physician at all. Therefore it will be seen that this service is of inestimable value to a large group of women who avail themselves of its assistance.

During the period a total of 129,814 prenatal letters, books, pamphlets, and other definite instructions were sent to inquiring mothers on request. In addition to the foregoing we sent out specially prepared time cards and diet lists as well as thousands of specially prepared leaflets giving instruction for the individual care of infants. In connection with this we supplied, upon direct request, 46,469 copies of two books, one known as "Infant Care" and the other as "Our Babies." This material is sent only on request from the physician, the midwife, the mother, or the local health officer or nurse. In this literature is assembled much valuable information which is of great aid every day to the mothers as to feeding and care of infants.

During the period a total of 855,192 pieces of literature have been sent out in connection with the Maternity and Infancy Division of the work. Also 18,448 boxes of silver nitrate solution, each box containing six ampules.



sufficient for the use of this important prophylactic drug in the eyes of six babies. This was sent to midwives, hospitals, and physicians.

Through this department an effort is made to make contacts with all of the midwives working in the State, this being taken up county by county in the counties having no whole-time health officers. An effort is made to assemble the midwives in small groups in their communities, in which they receive definite instructions from the nurse with reference to safety measures for the mothers they attend. An effort is made to get them to attend these class meetings in such counties once each year. They are instructed as to the minimum equipment they must have, the requirements for the prompt reporting of births, and the use of prophylactic silver nitrate treatment, which the law requires to be put into the eyes of each newborn baby within one hour after it is born, which is to prevent blindness later on from certain specific causes. During this biennium a total of 261 such meetings were held and a total of 1,554 midwives were examined and instructed by the nurses. A large number of midwives were refused permits and were requested to stop practice because of incompetence and lack of equipment.

In the autumn of 1933 the State Board of Health, through the Division of Maternal and Infant Hygiene, invited a few representative physicians, mostly those practicing in the small cities and country towns of the State, to meet with a representative of the Board in a few informal sectional conferences. Twelve of these small group meetings were held. The attendance was generally between a half dozen in the smallest to twenty-five in the largest. Each group was asked to elect from their number a "delegate" to come to Raleigh later for a general all-state conference. The purpose of these conferences was to discuss the present and past high infant and maternal death rate in North Carolina, and to try to find a method which could be applied in a practical manner throughout the State which would solve this problem. The sectional meetings in the fall developed a great deal of interest on the part of all participating physicians.

The central conference was held in Raleigh, March 26th. Every group with only one exception was represented. Dr. Isaac H. Manning, President of the North Carolina Medical Society, presided, and a full day of hard work was devoted to the subject. Every phase of the medical care of mothers, prospective and actual, and of babies was studied. The conference was asked to set forth what practicing physicians might term minimum standards of safety for every prospective mother to follow. A committee was appointed to write out some "rules of safety" to be followed. This committee was composed of Drs. H. H. Johnson, chairman, Louisburg; J. Street Brewer, Roseboro; Forest M. Houser, Cherryville; Thos. Leslie Lee, Kinston.

Their report follows:

## GENERAL PRINCIPLES OF PRENATAL CARE

### Every Woman Should Consult a Physician as Soon as She Thinks Herself Pregnant

#### I. (a) GENERAL PHYSICAL EXAMINATION (to be made before the fourth month of pregnancy).

1. History of previous pregnancies and diseases.

2. General examination:
  - (1) Foci of infection.
  - (2) Heart and lungs.
  - (3) Abdomen.
  - (4) Extremities.
3. Blood examination, to include Wassermann in all cases, hemoglobin in all cases, blood count desirable.
- (b) PELVIC EXAMINATION.
  1. Pelvic measurements to be taken before fifth month.
  2. Vaginal examination to be made before fifth month.

## II. ROUTINE VISITS TO PHYSICIANS.

1. Should visit physician once a month for first five months and twice a month thereafter, at which time following examinations should be made:
  - (1) Urinalyses.  
Specific gravity.  
Albumen.  
Sugar.  
Microscopic examination desirable.
  - (2) Blood pressure determination.
  - (3) Weight—Gain of over 24 pounds not desirable. Any rapid gain to be looked upon with suspicion.
  - (4) Estimation of height of uterus.
  - (5) Determination of fetal heart sounds.
  - (6) Diagnosis of presentation and position of fetus.

## III. GENERAL INSTRUCTIONS.

1. *Rest*—One hour after midday meal, two hours desirable.
2. *Exercise*—Walk at least one mile daily.
3. *Diet*—General well balanced, nourishing diet, with abundance of milk, vegetable, fruit and fruit juices.
4. *Medication*—No medicines (laxatives included) shall be taken except upon instruction of the physician.
5. Either supply or have patient write for various pamphlets and literature issued by the State Board of Health and the Children's Bureau of the U. S. Department of Labor.

## IV. SPECIAL INSTRUCTIONS.

Report at once to your physician if any of the following symptoms appear: Headache, dizziness, spots before the eyes, swelling of the feet and ankles or face, frequent or painful urination, bleeding or abdominal pain.

## POSTNATAL CARE

- I. Physician should visit patient not later than the third day after labor, at which time patient should be advised regarding:
  - (a) Nursing or feeding baby.
  - (b) Posture and exercises to prevent uterine displacements.
  - (c) When to get out of bed and resume usual activities.

- II. Six weeks after delivery patient should report to physician for vaginal examination to determine and correct ulcerations and displacements.
- III. Baby should be examined at this time for weight and dietary corrections unless under care of pediatrician.

In addition to the above-named physicians composing the committee, Dr. Manning, and the medical staff of the State Board of Health, the following practicing physicians generously contributed their time and labor to this epoch-making conference:

Dr. Verne H. Blackwelder, Lenoir.  
Dr. F. H. Garris, Lewiston.  
Dr. John D. Robinson, Wallace.  
Dr. S. C. Spoon, Burlington.  
Dr. C. F. Lambert, Spruce Pine.  
Dr. Eva F. Dodge, Winston-Salem.  
Dr. Grover Wilkes, Sylva.  
Dr. H. T. Aydlett, Greensboro.  
Dr. N. C. Daniel, Oxford.  
Dr. C. B. Williams, Elizabeth City.  
Dr. Ben Gold, Shelby.

The House of Delegates of the State Medical Society, meeting at Pinehurst, April 30 to May 2, accepted Dr. Parrott's request for the appointment of a permanent committee representing the medical profession. They decided to appoint three members to this committee, instead of five, for reasons of economy. President McCain appointed Drs. H. H. Johnson, of Louisburg; J. Street Brewer, of Roseboro, and Forest M. Houser, of Cherryville.

### HEALTH EDUCATION

In this important department of the work the most effective service is offered through the columns of the *Health Bulletin*, a monthly publication started more than forty years ago and which is sent on request to citizens of the State. This *Bulletin* is a sixteen-page monthly. The director of the division is editor of this publication, and a special effort is made to teach the simple elemental requirements of hygiene and sanitation in an understandable manner to all sections and groups of the population. During the period thirty-three thousand copies each month have been prepared and mailed out. It has been said by competent authorities that this *Bulletin* is one of the best of its kind in the United States. Recently the head of the Health Education Service of one of the greatest life insurance companies in the world in a public statement declared that the health education work of the North Carolina State Board of Health was the best and most effective in the country.

In addition to the thirty-three thousand copies each month of the *Health Bulletin*, during the period a total of 2,206,170 copies of special publications, such as pamphlets containing available information about communicable diseases as diphtheria, has been sent out on request to citizens of the State. There is available in this division a total of thirty-nine special bulletins and pamphlets on as many different diseases and conditions. New books and

pamphlets and bulletins are prepared from time to time as the demands of modern public health service require. In addition to the foregoing a total of many thousands of special mimeograph and multigraph communications offering specific information is sent out monthly through the mailing department of this division. During the two-year period a grand total of 3,347,339 pieces of literature has been mailed out through this division.

### PERSONAL HEALTH SERVICE

In a State of more than three million people it is natural to suppose that a large and increasing number of them will be constantly writing to the State Board of Health for definite information on a variety of subjects affecting the health of the people. An inconceivable number of questions on every known subject in the field of medicine and public health are received during the course of every year. Naturally a large proportion of these questions cannot be answered, but many of them can be answered with benefit to the inquirer. The keynote to this service in the replies sent out is information on how to protect the individual families from the ravages of preventable diseases. A large amount of personal advice is offered in such matters as nutrition and immunization against communicable diseases. An average of about fifteen letters a day are sent out every working day in the year.

## DIVISION OF LABORATORIES

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### STATE LABORATORY OF HYGIENE

To a marked degree the State Laboratory of Hygiene is a product of the genius of one man, the late Dr. Clarence A. Shore. Although the foundation for the laboratory was laid with an appropriation of \$600 by the General Assembly of 1905, the real history of the laboratory began in 1907 when the annual appropriation was increased to \$2,000 and Dr. Shore became its director in December of that year.

During the succeeding twenty-five years Dr. Shore rendered capable, unselfish and devoted service, and through all the vicissitudes of conflicting political, professional, and commercial interests, held to a true course of high ideals. He was never too weary to assist patiently any physician, health officer, or individual citizen who appealed to him for help in any problem affecting the public health.

In the development of the laboratory he was assisted by an able and loyal corps of workers, several of whom have been with the laboratory for many years and who were recruited to the service and trained by Dr. Shore. He did his work so well that today the State Laboratory of Hygiene at Raleigh is regarded by competent authorities as one of the best public health laboratories in the United States. During all these years the only effort which was made to secure support, either from organized agencies or the public, was that which came unsolicited in appreciation of high service.

The activities of the laboratory may be grouped roughly into three general classes: First, examination of water from municipal, other public supplies and private sources; second, the examination of specimens for the purpose of aiding physicians in early diagnosis of communicable disease, and the direction of measures designed to prevent the spread of disease; third, the preparation and distribution of vaccines and antitoxins that will protect human beings from infectious diseases.

To give any comprehensive explanation concerning the increased service which the laboratory has rendered would involve entirely too much detail. Nevertheless we can group similar activities and give their number for two-year periods selected so as to cover five comparable periods in the life of the laboratory. Under the heading of "Water Samples Examined," we had in 1909 to 1911, 3,600; 1914 to 1916, 7,958; 1920 to 1922, 5,031; 1926 to 1928, 10,895; 1932 to 1934, 11,479. In the group which we will call "Specimens from Patients" we had in 1909 to 1911, 3,665; 1914 to 1916, 10,447; 1920 to 1922, a few less than 45,000; 1926 to 1928, more than 120,000, and in 1932 to 1934, more than 256,000. Under the heading of "Doses of Vaccine and Therapeutic Agents" we had in 1909 to 1911, 8,075; 1914 to 1916, 612,530; 1920 to 1922, more than one million, two hundred and fifty thousand; in 1926 to 1928, more than three million, one hundred ninety-two thousand, and in 1932 to 1934, more than three million, three hundred seventeen thousand. Thus we see that the activities of the laboratory have increased rapidly and constantly.



The State Laboratory of Hygiene attempts to render a state-wide diagnostic service and distribution of biologics and other prophylactic and therapeutic agencies throughout the State. Service is rendered to every county in the State.

A great many examinations are made on Sundays and holidays. Such procedures as the examination of cultures for diphtheria, blood tests for typhoid fever, animal heads for rabies, water for bacteriological examination, spinal fluid for meningitis, and all miscellaneous specimens of an urgent nature are examined as soon as they arrive at the laboratory. However, such specimens as sputum for tubercle bacilli and specimens for intestinal parasite searches are kept until the next regular laboratory work day.

All positive findings of diphtheria cultures and brains from rabid animals are reported by telegram (collect) immediately after the examination is completed, unless we are specifically requested not to do so. Regular mailed reports are made on all specimens regardless of whether they have been reported by telegram or not. Two copies of this report are kept in our files and are so arranged that we can refer to them either by the name of the physician sending the specimen or by the county of its origin.

Practically all reports on specimens taken from patients must be interpreted by the physician who has examined the patient. It is our policy never to report the results of these examinations to any one except the patient's physician. Reports of positive blood cultures are most helpful to physicians in establishing a diagnosis. Reports of examinations based on immunity reactions are frequently difficult to interpret, regardless of whether they are positive or negative. The laboratory does not attempt to make a diagnosis. It merely tries to assist physicians in this procedure. Negative reports mean little other than that the laboratory was unable to find the organism or demonstrate the presence of immune substances. Negative results do not necessarily mean that the patient does not have the disease suspected.

The laboratory aids in the control of communicable disease. Perhaps we can call typhoid fever a typical illustration. The laboratory by the examination of municipal and public water supplies at frequent and regular intervals can sound a danger warning whenever a supply becomes contaminated and likely to produce an epidemic of typhoid. The laboratory can aid physicians in the early diagnosis of typhoid fever by examining the blood for typhoid bacilli, the so-called blood culture, and by the agglutination test. A positive blood culture is almost indisputable evidence that a person has typhoid fever. An early diagnosis makes possible the establishment of control procedures designed to prevent the spread of typhoid fever from the patient. Every specimen of blood which is sent to the laboratory for the Widal test is also cultured. The laboratory also aids in controlling the spread of infection by making examinations of body discharges so as to determine when the patient ceases to be infectious. Approximately ten per cent of all patients having typhoid fever become carriers of the organism for varying periods of time. Proper laboratory examinations will detect these carriers, who can be instructed as to the care which they should exercise in order to avoid infecting others.

In addition to these procedures the laboratory manufactures and distributes large quantities of typhoid vaccine. Other, but comparable, procedures are followed with other diseases.

The work of the laboratory is confined as strictly as possible to that of a public health nature. Strictly clinical examinations, such as chemical analyses of blood, blood counts, etc., are not encouraged. Recently, because of limited funds, we have had to discontinue the histological examination of tissues. On the other hand the laboratory does encourage the performance of those tests and examinations which yield information bearing on the public health. It is the policy of the State Board of Health, of which the State Laboratory of Hygiene is an integral part, in promoting the health of the people of North Carolina, to consider its laboratory as the official agency where public health tests and examinations should rightly and properly be made.

Although there is a reduction for the present biennium in the number of diphtheria cultures examined, this reduction is largely due to the decrease in prevalence of diphtheria during the fall of 1932. During October, November and December of 1933, the prevalence of diphtheria increased and the number of laboratory examinations likewise increased over those of the previous year. For the first six months of 1934 the laboratory has examined more cultures for diphtheria bacilli than it has during the first six months of any year since 1929.

During the present biennium we discontinued the use of dried blood for agglutination tests for typhoid fever and substituted the macro-agglutination method, using fresh serum from whole blood. The total number of agglutination tests for typhoid fever has increased markedly over the number made for the previous biennium. Increases have also been made in the number of blood cultures and feces and urine cultures made for the protection against typhoid infections.

Marked increases have also been made in the number of specimens examined for gonorrhea and the number of Wassermann tests made for syphilis. During the calendar year 1933, 84,273 Wassermann tests were made. For the first six months of 1934 almost fifty thousand tests have been made.

In an effort to improve the service which the laboratory can render in the control of syphilis we have, during the last six months of the biennium, endeavored to study the various precipitin tests for syphilis in an effort to determine the most satisfactory and dependable test. During this time we have made approximately five thousand precipitin tests and have detected ninety-four cases of clinical syphilis that otherwise would have been missed.

The importance of early diagnosis of syphilis, and its bearing upon the satisfactory treatment of the disease, resulted in the establishment of a procedure for the dark-field examination of chancre serum. Although this test was performed only during the last few days of the biennium, it is believed that it will be of great assistance to the physicians of the State in their efforts to control this serious disease.

A substantial increase in the number of examinations for tuberculosis is also shown for the biennium 1932-34.

The number of examinations of brains of animals for rabies has increased almost fifty per cent, due to the widespread prevalence of the disease in the dogs of the State.

The examination of blood smears for malaria shows a slight increase for the biennium, largely due to the small number of specimens examined during 1932. The number of specimens examined in 1933 was greater than for any previous year.

There has been a marked decrease in the number of specimens for urine analysis at the laboratory. This represents a type of work which we discourage and perform only as an accommodation to physicians who have no other laboratory facilities available.

The number of water samples analyzed during the biennium is a little more than one thousand less than for the previous biennium. This is due largely to the number of samples examined in connection with the school survey conducted during 1931. The number of samples examined during the calendar year of 1933 was greater than for any previous year except 1931.

The recognition of the presence in North Carolina of the eastern type of Rocky Mountain spotted fever probably explains the one hundred per cent increase in the number of Weil-Felix reactions performed during the present biennium. In the previous biennium most of the Weil-Felix tests were made for the purpose of aiding in the diagnosis of endemic typhus.

A twenty-five per cent increase in the number of agglutination tests for undulant fever occurred during the present biennium. This is not due so much to the increase in the prevalence of the disease, but to the alertness of physicians in suspecting its existence in their patients. A similar explanation is probably responsible for the more than one hundred per cent increase in the number of examinations for Vincent's angina.

In July, 1933, histological examination of tissues was discontinued, primarily because of inadequacy of personnel. The number of miscellaneous examinations increased remarkably. The increase in the number of specimens of feces examined for intestinal parasites was due largely to the school surveys conducted by C.W.A. nurses.

The distribution of diphtheria antitoxin decreased markedly during the present biennium. In fact, the number of horses kept for the manufacture of antitoxin reached the lowest number in the history of the laboratory since the preparation of antitoxin was begun. Unfortunately the increase in the prevalence of diphtheria during the latter part of 1933 brought a sharp increase in the demands upon the laboratory for diphtheria antitoxin, and the amount distributed during the first six months of 1934 was approximately twice that for the first six months of 1933. It has been necessary for us to increase the number of horses used for antitoxin work from ten to fourteen in order to supply the demands made upon us.

During the biennium the material for the immunization of children against diphtheria has been changed from diphtheria toxin-antitoxin to diphtheria toxoid. When we consider the number of immunizing treatments distributed during the biennium, it is approximately equal the amount distributed during the previous biennium.

Distribution of smallpox and typhoid vaccine has increased during the present biennium, although there was not as much of either of these products

used during the calendar year 1933 as there was during the calendar year of 1932.

The eighty per cent increase in the number of anti-rabic treatments distributed is due primarily to the increased prevalence of rabies among the dogs of the State, and consequently an increase in the number of people needing protection.

The marked increase in the distribution of therapeutic agents for the treatment of syphilis is largely attributable to the growing determination on the part of the medical profession of the State to exert greater effort for the control of this most serious disease. It is only by prompt recognition and thorough treatment of infected patients that we can hope to make much progress in this field of endeavor. However, when we resolve to put as much effort, intelligence and money into the control of syphilis as we have into the control of tuberculosis the people can be assured that comparable results will be obtained.

The financial statement of the laboratory shows a decrease in expenditures for the biennium of approximately twenty thousand dollars and an increase in receipts of approximately two thousand dollars.

The laboratory and its staff have, in common with practically all other organizations and citizens of the State, suffered from the depression. Much laboratory equipment has become antiquated or worn out, while we have been unable to make replacements. The volume of work has grown without a compensating increase in personnel. The members of the staff, true to the high ideals instilled into them by the late Dr. Shore, have shown great fortitude during this trying time. They have made every effort to render satisfactory service to the citizens of the State and to do everything within their power to aid the public health program for the protection of the lives and health of the people of North Carolina.



**STATE LABORATORY OF HYGIENE, RALEIGH, N. C.**  
**REPORT OF EXAMINATIONS MADE**

	July 1, 1932, to June 30, 1934			July 1, 1930, to June 30, 1932—Total
	Positive	Negative	Total	
Diphtheria:				
Examinations, bacteriological.....	612	8,271	8,883	11,148
Animal inoculation.....			6	4
Typhoid:				
Agglutination tests (dried blood).....	0	108	108	1,927
Macro typhoid Widal (whole blood).....	217	5,490	5,707	2,606
Blood cultures.....	427	4,288	4,715	2,703
Feces and urine cultures.....	46	4,274	4,320	2,264
Venereal diseases:				
Gonococcus.....	1,822	4,216	6,038	3,925
Wassermann.....			170,800	145,857
Blood:				
Negative.....	131,986			
Four plus.....	19,743			
Three plus.....	5,326			
Two plus.....	5,312			
One plus.....	5,009			
Haemolyzed.....	1,550			
Unsatisfactory.....	409			
Spinal fluid:				
Negative.....	1,206			
Four plus.....	73			
Three plus.....	30			
Two plus.....	34			
One plus.....	39			
Unsatisfactory.....	83			
Darkfield.....	3	10	13	0
Tuberculosis:				
Sputum, microscopic.....	937	6,039	6,976	5,589
Animal inoculations.....			31	45
Rabies:				
Microscopic examinations of brains.....	1,057	1,556	2,613	1,758
Animal inoculations.....			638	691
Malaria:				
Blood smears.....	55	1,732	1,787	1,748
Urinalyses.....			100	202
Water analyses:				
Bacterial and chemical.....			11,479	12,524
Weil-Felix, reaction.....	46	2,780	2,826	1,402
Undulant fever, agglutination.....	68	2,818	2,916	2,227
Vincent's angina.....	2,544	3,247	5,791	2,202
Tissue examinations.....			85	348
Miscellaneous.....			1,148	645
Spinal fluid.....			184	228
Feces, Intestinal Parasites:				
Number of examinations.....	1,332	9,177	10,509	6,144
Total.....			247,673	206,187



**STATE LABORATORY OF HYGIENE, RALEIGH, N. C.**  
**REPORT OF BIOLOGICALS DISTRIBUTED**

	July 1, 1932, to June 30, 1934	July 1, 1930, to June 30, 1932
THE FOLLOWING ARE MANUFACTURED IN STATE LABORATORY OF HYGIENE:		
Diphtheria Antitoxin—		
1,000-unit packages.....	865	1,765
5,000-unit packages.....	889	1,675
10,000-unit packages.....	13,061	18,111
Schick Tests for Diphtheria—50-tests packages.....	3,460	3,044
Schick Control for Diphtheria—50-tests packages.....	758	1,043
Smallpox Vaccine—		
Individual tubes.....	101,283	96,865
50-dose vials.....	6,426	7,613
Typhoid Vaccine—		
3cc. vials.....	26,350	30,427
10cc. vials.....	191,959	178,654
Rabies Treatments (complete—21 doses each).....	2,956	1,655
Tetanus Antitoxin—		
1,500-unit packages.....	21,253	20,627
5,000-unit packages.....	1,287	1,182
Pertussis Vaccine—		
5cc. vials.....	7,572	7,453
10cc. vials.....	6,420	6,473
Autogenous Vaccine.....	181	159
Bacterial Cultures.....	49	78
THE FOLLOWING ARE BOUGHT AND DISTRIBUTED AT COST:		
Diphtheria Toxoid—		
3cc. vials.....	1,554	173
10cc. vials.....	23,723	1,292
Diphtheria Toxoid (supplied by U. S. P. H. S.)—30cc. vials.....	112	666
Diphtheria Toxoid Antitoxin—		
3cc. vials.....	2,342	8,707
10cc. vials.....	5,789	33,382
Diphtheria Toxin Antitoxin Supplied (U. S. P. H. S.)—10cc. vials.....	58	1,864
Neocarsphenamine and Sulpharsphenamine—		
0.1-gram ampules.....	148	232
0.2-gram ampules.....	344	147
0.3-gram ampules.....	591	152
0.4-gram ampules.....	1,110	533
0.6-gram ampules.....	51,548	22,828
0.9-gram ampules.....	27,152	24,739
4.5-gram ampules.....	2,299	1,564
Distilled Water—10cc. vials.....	45,519	14,932
Scarlet Fever Antitoxin—		
Prophylactic syringes.....	33	58
Therapeutic syringes.....	31	81
Dick Tests for Scarlet Fever.....	1,920	1,290
Blanching Test for Scarlet Fever.....	50	90
Erysipelas Antitoxin (syringes).....	50	26
Antivenene (syringes).....	15	20
Meningitis Antitoxin (syringes).....	24	65
Bacteriophage—		
2cc. vials.....	9	335
5cc. vials.....	9	3
20cc. vials.....	0	10
Insulin (units).....	44,300	0
Bismuth Tartrate—20cc. vials.....	55	0

## STATE LABORATORY OF HYGIENE, RALEIGH, N. C.

## EXPENDITURES

	July 1, 1932, to June 30, 1931	July 1, 1930, to June 30, 1932
Salary head.....	\$ 8,255.20	\$ 11,266.67
Salaries, wages.....	64,228.45	81,822.51
Supplies, materials.....	52,866.21	54,981.79
Postage, telephone, telegraph, express.....	9,800.08	8,051.48
Travel expense.....	139.13	121.62
Printing.....	895.01	1,636.78
Motor upkeep.....	1,189.18	931.84
Light, power, water.....	3,737.29	3,059.28
Repairs.....	1,772.42	763.15
General expense.....	160.01	205.04
Equipment.....	920.48	794.95
Insurance.....	448.75	559.93
Workmen's compensation.....		15.00
Total.....	\$ 144,412.21	\$ 164,216.04

## RECEIPTS

BIOLOGICALS MANUFACTURED IN STATE LABORATORY OF HYGIENE:		
Diphtheria Antitoxin.....	\$ 4,845.90	
Tetanus Antitoxin.....	13,355.22	
Rabies Treatments.....	9,906.63	
Autogenous Vaccine.....	594.20	
	\$ 28,701.95	\$ 28,739.21
ARTICLES BOUGHT AND DISTRIBUTED AT COST:		
Diphtheria Toxoid.....	\$ 8,501.33	
Diphtheria Toxin Antitoxin.....	3,537.93	
Neosarsphenamine.....	10,321.84	
Distilled Water.....	2,446.64	
Scarlet Fever Antitoxin.....	286.01	
Dick Test.....	41.70	
Blanching Test.....	3.74	
Erysipelas Antitoxin.....	237.11	
Antivenene.....	128.01	
Meningitis Antitoxin.....	216.75	
Insulin.....	188.17	
Bacteriophage.....	32.50	
Bismuth Tartrate.....	3.50	
	25,948.23	21,524.13
Total.....	\$ 54,650.19	\$ 50,263.34
Refund.....	340.10	528.00
Net total.....	\$ 54,310.08	\$ 49,735.34
Water Tax.....	20,394.55	20,653.03
Special Fees.....	387.20	1,119.90
Miscellaneous.....	288.60	331.50
Venereal Disease Control Clinic.....		1,475.35
Total.....	\$ 75,380.43	\$ 73,324.22

## FINANCIAL STATEMENT

Total Expenditures.....	\$ 144,412.21	\$ 164,216.04
Total Receipts.....	75,380.43	73,324.22
Appropriation.....	\$ 69,031.78	\$ 90,891.82

## VITAL STATISTICS

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The Bureau of Vital Statistics was created by an Act of the General Assembly of 1913 which made the State Board of Health custodian of all records of births and deaths and its Secretary, by virtue of his office, State Registrar of Vital Statistics. At present the Bureau is under the supervision of the Director of the State Laboratory of Hygiene and includes an additional staff of one medical assistant and fifteen clerks.

The Bureau has endeavored to perform the duties assigned to it by the General Assembly of 1913. These include the collection, editing, filing and tabulation of approximately 110,000 birth and death certificates yearly. In addition to the routine tabulations and analysis of the records, special studies have been made. The services rendered by the Bureau have been increased. The methods of filing and indexing were improved and attempts made to improve the completeness and acceptability of the records. By acts of the General Assembly of 1933, registration districts may be combined or divided, whole counties may be made into a registration district with the health officer designated as local registrar for the county; stillbirths are registered on a special stillbirth blank in place of the two reports required heretofore, and certificates are made for adopted children, giving the names of the foster parents.

The fundamental features of our registration system are: *First*, there is a registration district for each township, town and city. One or more of these units may be combined into one district when deemed advisable. With the consent and by the authority of the State Registrar whole counties may act as a unit, the county health officer being local registrar for the entire county. *Second*, for each registration district a local registrar is appointed. Township registrars are appointed by the chairman of the board of county commissioners of their respective counties, and town and city registrars by the mayor of the municipality. It is the duty of this local registrar to secure birth and death certificates for each person who is born or dies within his registration district, and to forward these certificates to the State Board of Health on the fifth of each month. *Third*, the doctor or midwife who attends a birth must file a birth certificate with the local registrar within five days after the birth occurs. *Fourth*, the undertaker, or person acting as undertaker, is responsible for filing the death certificate. He must secure the personal information from the relative or friends of the deceased, have the medical portion, showing cause of death, filled out by the physician last in attendance, then take the certificate to the local registrar and secure a burial permit before burial takes place. In cases where no regular undertaker is employed, the member of the family or friend who purchases the casket and attends to the funeral is responsible for filing the death certificate and securing the burial permit.

In counties having a full-time health officer and in which the health officer is not local registrar for the entire county, the local registrar forwards a report to him each month of the births and deaths that have occurred in the registrar's district.

After the certificates reach the Bureau of Vital Statistics they are checked for completeness. Amendment certificate blanks are sent and letters are written in an effort to secure any missing information. The certificates are then numbered and bound in volumes of approximately 500 certificates. An index card is made for each certificate and filed in visible panels according to the Russel-Soundex system to enable prompt location if it becomes necessary to refer to the record.

The parents of children are notified when the birth certificate is received by the Bureau. These notices should be received within about three months of the birth of the child. If the parent does not receive this notice within a reasonable time he should make inquiry to determine if the birth was reported.

Copies are made of all birth and death certificates and forwarded to the Bureau of the Census at Washington.

In order to make the tabulations necessary to furnish the information which the Bureau of Vital Statistics is constantly being called upon to provide, a card is punched for each birth and death, and these cards are run through machines which automatically sort and count them. From these, data tables are prepared for the Annual Report of the Bureau of Vital Statistics.

Besides the Annual Report the Bureau issues monthly a provisional tabulation of the total number of births and deaths and deaths by cause for the more important diseases. This is distributed on the 15th of the month for the previous month to the various departments, to county health officers and to the newspapers. Numerous special tabulations are done. A special study of maternal mortality is being carried on, two reports having been made already before the North Carolina Public Health Association.

To obtain more complete reporting of births and deaths the Assistant Director of the Bureau has spent approximately two weeks of each month for the past year in visiting local registrars, physicians and undertakers. About seventy-five counties have been covered.

A new bookkeeping system for local registrar's accounts has been installed, improving the efficiency and reducing the cost of this procedure. Steel shelving has been added to the vault, making storage space for the certificates available for several years and delaying the time when additional vault space must be provided. A modern visible index system has been installed. Certificates are indexed and filed in visible panels on revolving drums. At the end of the year the panels are photostated and copies bound in permanent form. The cards may then be destroyed and the panels used again for the index of current certificates thus providing a more useful and a more economical permanent index.

To the individual a birth certificate will furnish proof, which will be accepted in every civilized nation on earth, of the place of birth, the time of birth, and parentage. The place of birth as recorded on the birth certificate may be used to establish citizenship or to establish residence. It is necessary in order to obtain a passport. The time of birth may be used to prove age, to obtain admission to school, to establish the right to work, to qualify for Civil Service examination, to hold public office, to establish the right to vote, to obtain a marriage license, to determine legal responsibility,



or to prove qualification for or exemption from civil and military duty. Parentage, as stated in the birth certificate, is necessary to establish the right to inherit or bequeath property, to establish identity, to obtain settlement of insurance, to prove that parents have dependent children, to prove legitimacy or to furnish acceptable evidence of genealogy.

Death certificates may be used by individuals to furnish evidence in court, to secure pensions or life insurance, to establish titles and right of inheritance, or to give home-seekers and immigrants a guidance in selecting safe and healthful homes.

In organizations interested in health problems and procedures, birth and death records are used to determine the magnitude of health hazards, to plan new activities, to prevent epidemics, and to evaluate procedures. Since we use these records as a yard-stick for measuring our problems and progress, it is essential that they be accurate.

The total number of live births reported in 1931 was 74,743; in 1932, 77,880, and in 1933, 75,322. This gives us a birth rate of 23.2 per 1,000 population for 1931; 24.0 for 1932, and 23.0 for 1933. The birth rate in this State has declined from 31.2 in 1914 to a low of 23.0 for 1933. Although this decline in the birth rate of North Carolina has been marked, it has been paralleled by a similar decrease in the birth rates throughout the United States.

The death rates for North Carolina in 1932 and 1933 were lower than for any year since registration for the entire State was begun in 1914. In 1932 there were 31,000 deaths in the State; in 1933 there were 30,566. Death rates per 1,000, computed on the basis of estimated populations, were as follows: 1930, 11.2; 1931, 10.2; 1932, 9.6; 1933, 9.3. Our death rate compares favorably with the death rates of other states.

The principal causes of death in order of their importance were heart disease, nephritis, congenital malformations and diseases of early infancy, cerebral hemorrhage, pneumonia, tuberculosis, all accidents and cancer. These eight causes make up over 60 per cent of the total deaths. The mortality from the principal causes of death has shown many changes since the beginning of registration in 1914. The rates for the infectious diseases have decreased and those for the chronic degenerative diseases have increased. In 1914 the principal causes of death ranked as follows: tuberculosis, pneumonia, diarrhea and enteritis, heart disease, cerebral hemorrhage, congenital malformations and diseases of early infancy, nephritis and all accidents.

**TYPHOID FEVER:** There were 158 deaths from typhoid fever in 1932 and 139 in 1933. This gives a rate of 4.9 for 1932 and 3.9 for 1933, the latter being the lowest ever recorded for North Carolina. The trend in typhoid fever death rates has been consistently downward since 1914. In that year the rate was 35.5 per 100,000 population, almost ten times what it was in 1933.

**SMALLPOX:** No deaths were reported as due to smallpox for 1932 and 1933.

**DIPHTHERIA:** In 1932 there were 165 deaths due to diphtheria and 198 in 1933. There has been a reduction of over 75 per cent in the mortality rate from this disease in the past 15 years. Within the past five years the rate has been cut in half. Diphtheria is a disease for which we have a specific protective immunization and is, therefore, a disease against which public health activities can be very effective. In round numbers five-sixths of the



deaths from diphtheria occur in children under five years of age. This indicates the age-group in which prophylactic measures can be applied most profitably.

**TUBERCULOSIS:** In 1915 tuberculosis was the leading cause of death with a rate of 156.4 per 100,000 population. It now ranks in sixth place with a rate of 68.1 for 1932 and 64.3 for 1933. This represents a reduction of approximately 60 per cent from the 1915 ratio.

**PELLAGRA:** The highest death rate ever recorded from pellagra in North Carolina occurred in 1930 when 1,015 deaths were reported as due to this cause. There was a marked decline in the number of pellagra deaths in 1931 and 1932 and still further reduction in 1933. Pellagra accounted for 696 deaths in 1931, 475 in 1932, and 386 in 1933.

**MATERNAL MORTALITY:** The diseases of pregnancy, childbirth and the puerperal state continued to exact a large toll from the mothers of the State. The deaths recorded as due to maternal causes accounted for far too great a number in proportion to the number of live births. There was a decrease from 640 puerperal deaths in 1931 to 560 for 1932 and to 505 in 1933. This represents a rate of 8.6 per 1,000 live births for 1931, 7.2 for 1932, and 6.7 for 1933. Only the last year approximates the rate of 6.5 for the United States Registration Area. For the five years previous to 1932 there has been only slight change in the maternal death rate, the rate never coming below 8.2 per 1,000 live births.

Heart disease, cerebral hemorrhage and cancer have caused a larger proportion of the total deaths in the State from year to year. This has been due partly to a decrease in the number of deaths from other principal causes and partly to an actual increase in the rate from these conditions.

The report for 1934 will present quite a different picture if the citizens of the State continue to die at the same ratio for the last six months of 1934 as they have for the first half of the year. Table No. 1 gives the total number of births and deaths and deaths from a number of important causes reported during the first six months of 1934, in comparison with the same period for 1933.

**TABLE No. 1**

**Births, Total Deaths and Deaths from Important Causes  
January-June (inclusive) 1933 and 1934**

	1934	1933
Total deaths .....	18,442	15,895
Death rate (yearly rate).....	11.2	9.7
Total births .....	37,934	36,711
Birth rate (yearly rate).....	23.0	22.4
Infant deaths (under one year).....	3,159	2,692
Infant mortality rate (per 1,000 live births).....	83.3	73.3
Maternal deaths .....	285	267
Maternal mortality rate (per 1,000 live births).....	7.5	7.3
Typhoid and para-typhoid fever.....	12	34
Endemic typhus fever .....	0	2

	1934	1933
Undulant fever .....	0	0
Smallpox .....	0	0
Measles .....	275	59
Scarlet fever .....	26	14
Whooping-cough .....	227	96
Diphtheria .....	73	44
Influenza .....	511	785
Acute poliomyelitis and acute polioencephalitis.....	6	4
Epidemic cerebro-spinal meningitis .....	11	4
Rabies .....	0	3
Tetanus .....	13	5
Tuberculosis, pulmonary .....	1,023	1,017
Tuberculosis, other forms.....	100	91
Syphilis, locomotor ataxia, paresis.....	176	114
Malaria .....	3	10
Cancer (total) .....	855	789
Diabetes mellitus .....	188	174
Pellagra .....	212	189
Pneumonia, all forms .....	2,243	1,291
Diarrhea and enteritis (under two years of age).....	281	329
Appendicitis .....	170	126
Puerperal septicemia .....	60	53
Puerperal, other forms .....	225	214
Suicide (total) .....	110	141
Homicide (total) .....	199	173
Automobile accidents, primary .....	370	274
Automobile and railroad collisions.....	21	15
Other railroad accidents .....	46	45
Air transportation accidents .....	3	7
Conflagration and accidental burns.....	174	107
Accidental drowning .....	63	71
Accidental traumatism by firearms.....	47	38

No selections have been made, but the complete list is given of the causes that have been tabulated by month routinely for the past several years. The data for both periods represent the numbers reported monthly and are provisional. But since both are provisional they are, therefore, comparable.

In over two-thirds of the causes given there has been an increase in the number of deaths. For the first six months of 1933 there were 15,895 deaths reported and for the same period in 1934 there were 18,442, an increase of 2,547 deaths. Births increased from 36,722 to 37,934, an increase of 1,223. Pneumonia accounted for 952 more deaths for the first six months of 1934, measles for 216 more, whooping-cough for 131 more, and syphilis for 62 more. There were 467 more infant deaths than for this period in 1933. The increase or decrease can be seen for any disease listed by referring to the accompanying table.

It is important, both to individuals and to health organizations, that we have complete and acceptable records of all births and deaths which occur in the State. We can only attain that objective when physicians, undertakers, midwives, registrars, and individuals do their part. Since birth and death certificates are important documents, it is essential that we have the legal signatures of physicians, midwives, and registrars. If every one who has responsibility in connection with birth and death certificates will give the consideration to these documents which their importance deserves we can have records which will fill the needs of individuals and which will make health protection more effective.

## DIVISION OF ORAL HYGIENE

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The Mouth Health Programs, which are conducted in the schools of this State by the Division of Oral Hygiene, are becoming more popular every day, and the demands for this service are steadily increasing. It is very gratifying to have the interest and co-operation of the people of the State. Our service being mainly one of education, it is particularly encouraging to us to see that some of our teaching is being heard and remembered. We feel that we are making definite progress.

As will be shown by the accompanying report of activities, the work during the present biennium has grown considerably. This fact is also a matter for congratulation inasmuch as the appropriations to this department (as to every other State department) have necessarily been reduced to a minimum. It is a source of pleasure to see that the work has not slowed up during these difficult times but has actually progressed. Our staff of dentists are loyal and conscientious, and they themselves have done much to push the work forward. We have been most fortunate in securing these men.

Mouth Health Programs have been conducted during the biennium in the following counties: Alamance, Ashe, Beaufort, Bladen, Buncombe, Cabarrus, Carteret, Catawba, Cherokee, Chowan, Clay, Cleveland, Currituck, Dare, Davidson, Davie, Durham, Edgecombe, Forsyth, Gaston, Graham, Granville, Guilford, Halifax, Haywood, Henderson, Hertford, Hoke, Hyde, Iredell, Jackson, Johnston, Jones, Lee, Lincoln, McDowell, Macon, Madison, Mecklenburg, Mitchell, Montgomery, Moore, Nash, Orange, Pasquotank, Pender, Person, Pitt, Polk, Randolph, Richmond, Robeson, Rowan, Rutherford, Sampson, Stanly, Stokes, Swain, Transylvania, Tyrrell, Union, Wake, Watauga, Washington, Wayne, and Yancey—a total of sixty-six counties.

In addition to the above counties, programs were conducted in the cities of Asheville and Rocky Mount and in the following orphanages, training schools, etc.: Presbyterian Orphanage, Barium Springs; Eastern Carolina Industrial Training School, Rocky Mount; Methodist Orphanage, Raleigh; Children's Home, Winston-Salem; Colored Orphanage, Oxford; Morrison Industrial Training School, Hoffman; Methodist Protestant Home, High Point; Freewill Baptist Orphanage, Middlesex; Mills Home, Thomasville; State School for the Blind (both white and colored), Raleigh; Jackson Training School, Concord. One of the staff dentists, with the director of the division, spent two weeks on the Cherokee Indian Reservation in Swain County in June, 1933, during the survey made by the State Board of Health in co-operation with the Indian Service and the U. S. Public Health Service.

During the biennium the dentists examined 144,658, treated 80,977, and referred 34,615 to their dentists for further treatment. They delivered 2,597 lectures on Mouth Health to an approximate attendance of 178,105.

The summary of treatments is as follows:

Number of amalgam fillings.....	52,315
Number cement fillings.....	9,165
Number silver nitrate treatments.....	108,100

Number teeth extracted.....	71,217
Number children's teeth cleaned.....	73,864
Number miscellaneous treatments.....	5,063
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Total number operations.....	319,724

On February 20 and 22, 1934, a Mouth Health Survey was conducted in the schools of the State by members of the North Carolina Dental Society. Blanks and other supplies for these inspections were furnished by the State Board of Health. All records were shipped to the State Board of Health and we are now engaged in mailing notices to parents of children having dental defects, urging them to take the child to his family dentist for further inspection. The mouths of approximately two hundred fifty thousand children were examined on these two days, and the result of these inspections has been astounding. The following is part of the information secured by the survey:

Number of schools examined.....			705
Number of children needing dental treatment.....			198,368
Number needing no dental treatment.....			37,374
Number who have never visited a dentist.....			130,385
Number who have had.....	{	Prophylaxis .....	39,701
		Fillings .....	57,561
		Extractions .....	35,106
<hr/>			
		<i>Decidious</i>	<i>Perma- nent</i>
Number treatments needed.....	{	Extractions .....	106,300 27,024
		Fillings .....	141,340 194,503
		Prophylaxis .....	81,595 80,347
Number missing six-year molars.....			18,352
Number children with diseased gums.....			21,118
Number children needing orthodontic treatment.....			21,996
Number children having mottled enamel.....			17,992
Number children who were grade repeaters.....			81,701



## DIVISION OF SANITARY ENGINEERING

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This biennium has been characterized by the precipitation of a multiplicity of new duties and problems upon the Division of Sanitary Engineering. In addition to the manifold normal routine activities demanding attention, recent national and State legislation increased the work of an already overburdened personnel.

### SANITARY ENGINEERING ACTIVITIES

State legislation placing all prisoners, county and State, under the jurisdiction of the Highway Department, and the resulting construction of convict camps in all sections of the commonwealth, imposed upon this Division the responsibility for providing safe water supplies and adequate sewage disposal systems for these institutions. Plans for sewerage systems adequate to meet the peculiar demands of a prison camp had to be prepared, camp sites visited for selection of the most suitable locations for such plants, and supervision provided following construction to insure their proper operation. The preparation of plans for the convict camp sewage treatment plant, and incidentally for institutions generally, was based upon some original research, most of which was done by the Division personnel after office hours.

National legislation authorizing the establishment of Civilian Conservation Corps camps added new duties. In this connection the concern of this Division was confined chiefly to the problem of safeguarding against contamination of the water supplies of our mountain communities, most of which use the surface water of nearby streams without filtration. Chlorine disinfection, however, is provided. In several instances these camps were located upon the watersheds of such streams and above the respective municipal intakes. In addition to the inspection of such camp sites the design of temporary sewage disposal plants for them became mandatory.

During the first month of this biennium the Reconstruction Finance Corporation was created by the National Congress as an agency of the Emergency Relief and Construction Act of 1932, and authorized to make loans to aid in the financing of "self-liquidating" construction projects. This Department interpreted the provisions of the act as providing the means for the financing of much worthwhile and badly needed improvements to municipal waterworks and sewerage systems. Accordingly the personnel of the Department was instructed early in this biennium to promote in all cities of the State the installation of RFC financed improvements to municipal water and sewerage facilities. The activities of the Department in this regard resulted in the towns of Valdese and Roanoke Rapids obtaining waterworks and sewerage facilities which had not been available theretofore, and in the construction of a new water filtration plant for Sanford, all RFC financed. In addition the promotion work of the Department resulted in local financing of improvements to the Burlington sewage disposal plant and the construction of a new disposal plant for Elm City.

In the spring of 1933 advice received from the U. S. Public Health Service and nationally organized associations to the effect that the RFC Act was to be liberalized to promote and hasten the construction of worthwhile public

works, resulted in the Department redoubling its efforts to have municipalities install needed improvements. This early promotional work dovetailed nicely into the later and more intensive efforts of the Department after the RFC became a part of, and was succeeded by, the National Industrial Recovery Act.

Information on file in the office of the Division in August, 1933, indicated that many towns and cities were in need of new, or improvements to existing, sanitary facilities. Tabulation of the data revealed 227 projects, the construction of which would have involved an outlay of  $8\frac{1}{2}$  million dollars. Much of this work normally would have been done, had it been possible to market town bonds. Under the provisions of the National Industrial Recovery Act such improvements would become possible through grants and the sale of bonds to the Federal Government at an attractive rate of interest. Therefore, in the hope of having much of the needed waterworks and sewerage improvements made the Division intensified the promotion work begun during the existence of the RFC. Co-operating with the National Recovery Committee of the American Waterworks Association, which organization bore the cost of stationery and postage, many form letters were dispatched to municipal officials explaining the attractive terms upon which money could be obtained from the government, and urging the construction of needed improvements. In addition the regular personnel of the Department interviewed many city officials and appeared before many municipal boards in the interest of having needed sanitary improvements constructed. Later, promotion work of this character was largely taken over by five CWA paid engineers who, at the request of the director, were attached to this Division for the promotion of needed sanitary improvements as either PWA or CWA projects. This activity of the Division was in large measure responsible for fifty municipalities submitting applications to the Public Works Administration for funds with which to construct waterworks and sewerage improvements. Included in this number were applications from 19 towns not having public water supply or sewerage conveniences; from six communities having water and sewerage systems and badly in need of sewage disposal facilities, but having none, and from one town having a water system but no sewerage system. Municipal waterworks and sewerage improvements approved by the PWA will total approximately four and one-half million dollars. The expenditure of this amount of money for better safeguards for the protection of the public health is largely a result of the promotion work of the Division.

With the inauguration of the CWA activities an agreement was early made with the State Relief Administration whereby all projects involving sanitation were to be submitted to and approved by the State Board of Health prior to the beginning of construction. As a consequence literally hundreds of projects passed through the offices of the Division. The volume of this work was so great as to make necessary the bringing of field personnel into the office, but even with this assistance the office force was overwhelmed. Some relief was provided by the detail of five CWA paid engineers (referred to above) to the State Board of Health.

In many sections of the State, notably at Elizabeth City, Washington, Sanford, Franklin, Henderson, Apex, Troy, Siler City and towns along the

Tar River, the drought of 1932-1933 brought about the development of water purification plant operation difficulties and stream pollution problems, the solution, or mitigation, of which were effectuated through assistance rendered by the personnel of this Division.

The Division of Sanitary Engineering has long been cognizant of the public health menace existing as a result of the unregulated construction and operation of swimming pools. Due to a lack of personnel sufficient to enforce rules and regulations governing such places the State Board of Health has in the past chosen to exercise no regulations whatever, rather than attempt control and fail for lack of manpower to enforce rules. During the biennium, however, the construction of swimming pools by Federal unemployment relief activities forced the Division to consider seriously swimming pool construction and operation. Consequently there has been prepared a set of recommendations for the design of swimming pools and bathing places in which is included a crystallization of the best thought available on the subject. In addition much service has been rendered municipalities in assisting architects and engineers retained by such bodies in the preparation of plans and specifications for swimming pools and in supervising construction and subsequent operation.

An outstanding accomplishment of the Division during this biennium was the establishment of a school-conference for officials and plant operators of municipal water departments, sponsored by the State Board of Health. The initial session was held at State College in June 1933. This meeting was received so favorably by those in attendance that a motion that the school-conference be held each year was unanimously adopted. At these meetings the water works men have an opportunity to receive instructions from college professors and others in the fundamentals of the sciences upon which is founded modern water purification practice. An increase in enthusiasm for such gatherings was noted on the part of those in attendance at the second annual meeting which was held at the University of North Carolina, Chapel Hill, in June 1934. The plan at present is to alternate the meetings yearly between the two State institutions.

Two excellent bulletins relating to excreta disposal have been prepared, one of which contains complete instructions for the construction and maintenance of privies, and the other provides similar information with respect to residential sewage disposal plants. Both publications contain detail engineering drawings of the respective facility involved.

Many engineering drawings have been prepared which provide detailed plans for sewage treatment by means of (1) a septic tank followed by secondary treatment for sewage by means of either sand filters or under-ground disposal, (2) an Imhoff tank followed by secondary treatment including (a) a tipping trough with stone or lathe filters and secondary settling, (b) a rotary distributor for rock filter and secondary settling, (c) sand filters; (3) emergency field privy box; (4) school privy; (5) economical screen door construction; (6) dairy barn; (7) milk house; (8) sterilizing room or steam chamber; (9) manure pit; (10) proper well construction. Numerous miscellaneous drawings were prepared, some of which are: (1) drawing showing relation of milk house to dairy barn; (2) charts containing data for use in ditch construction by CWA and ERA malarial control workers; (3) par-

tially completed a State stream map upon which is spotted location of municipal water works intakes and sewer outfalls for both municipal and mill wastes.

Noteworthy miscellaneous investigations conducted by the Division are listed as follows: Study of causes responsible for an epidemic of typhoid fever at Banner Elk which resulted in 45 cases of the disease and 3 deaths; studies of municipal water supply systems of Maxton, Red Springs and Selma, respectively to determine the cause or causes responsible for, and the means of remedying, taste and odor difficulties with which was associated the occurrence of colored water; industrial hygiene probe involving alleged poisoning through pollution of the atmosphere by fumes from a lead smelter.

Much engineering-consulting work was performed for State Institutions and in several instances detail plans were drawn for contemplated improvements.

The foregoing discussion of purely sanitary engineering activities has been confined largely to the unusual duties which devolved upon the Department during the biennium as a result of unprecedented State and National legislation. In spite of the great amount of extra routine tasks imposed a creditable amount of supervision of municipal and institutional sanitary facilities has been maintained and much assistance given local authorities in the solution of water purification and sewage treatment plant operating difficulties. In this connection attention is directed to the number of inspections (including conferences and investigations) recorded in the table of statistics accompanying this report.

### SANITARY INSPECTION ACTIVITIES

The Great Smoky Mountains National Park and area contiguous thereto figured prominently in the extra routine activities of the Sanitary Department of this Division during the early part of this biennium. Anticipating the influx of visitors into the area from this and adjoining states and appreciating the health menace involved through the possibilities created for widespread dissemination of indigenous infections and infestations, the State Health Officer wisely ordered a sanitary survey made. Accordingly headquarters for a field survey were established at Bryson City and a group of sanitarians deployed therefrom. The investigation involved the homes of rural residents of the area living along the main arteries of travel converging upon the park, and hotels and food handling establishments, both rural and urban, within that part of the State circumscribed for the survey. The investigation was concerned primarily with the collection of information relating to the sanitary status of water supply, sewage disposal, milk production and handling facilities, and screening. Recorded also was a history of the sickness in each family contacted with especial reference to intestinal diseases. A comprehensive picture of the sanitation of the area was thus obtained. From this information the extent and type of activities best suited to safeguard the health of visitors in this section of our mountains may be determined.

Far reaching in its value to the people of North Carolina was the completion of a survey of the sanitary facilities of the public schools of the State.



The results of this investigation were appalling in that it revealed that in spite of the money spent in recent years upon school facilities there existed in the State over 1,000 public schools without sewerage facilities of any kind—not even privies. This means that approximately 47,000 school children were forced to retire to the bushes in answering calls of nature. Water supply facilities were equally as bad in that 33% of our schools were found to have no school water supplies whatever; 37% had questionable to dangerously polluted water supplies and only 30% fair to good drinking water.

One of the most impressive lessons learned in connection with the completion of this school sanitation survey was that in the vast majority of cases where advice, assistance and even engineering drawings had been furnished school boards and other school officials the plans had not been followed, and as a result the time, money, materials and effort expended had largely been wasted. This condition of affairs is in striking contrast to that of our State convict camps where the one central State authority in charge of camp construction has followed closely plans and suggestions of this Board for providing safe water supplies and sewage treatment plants for these camps. Undoubtedly much better school sanitation could be provided in North Carolina for less money if the construction of such facilities could be centralized in the hands of a single board or commission.

As a result of this State-wide school sanitation survey much of the time of the personnel of this Department has been devoted to improving school sanitation with the result that appreciable improvement in school water supply and sewage disposal facilities has been effectuated, despite the handicap above noted.

### CWA SANITARY WORK

Probably the most widely publicized, and at the same time the most far reaching in their effect upon the lives and health of our citizens have been the accomplishments of the sanitation department employing relief labor for the construction of sanitary pit privies. Coincident with the inauguration of the Civil Works Administration in November 1933 the U. S. Public Health Service announced that it would participate in underwriting the cost of State and county personnel to supervise the execution of a sanitary pit privy construction program employing relief labor. As a result of this announcement the State Health Officer immediately perfected a State-wide supervisory organization which consisted of an Assistant State Director, six District, and six Assistant District Supervisors, the State Health Officer being the Director of the Service. This activity the State Health Officer designated the Community Sanitation Service. In the interest of efficiency the positions of Assistant State Director and District Supervisors were filled with experienced men already in the service of the State Board of Health, they being given leaves of absence and transferred to the direction of the privy work. The Assistant District Supervisors were recruited from the ranks of the unemployed, as was the supervisory personnel in each county. This group of men succeeded in having CWA pit privy construction projects approved for 99 of the 100 counties in the State and the work actually started in 98 of them. During the four-month period of CWA activities 39,256 pit privies were constructed, of which 1,376 were erected at schools. This would be



sufficient privies if placed side by side to form a solid line nearly 45 miles in length. In addition 219 septic tanks were constructed. This work was done, for the most part, by men wholly unfitted by previous training and experience for such labor. The organization of the work on a State-wide basis and the conversion of former clerks, salesmen, office workers and in fact anything but carpenters into privy builders, is indicative of the efficiency and ability of the State Board of Health employees responsible for the execution of the program. Conservatively, it is estimated that the CWA privy program provided better sanitary facilities for 200,000 of our citizens, many of whom previously had enjoyed no sewage disposal conveniences of any kind.

In addition to the sewage disposal facilities constructed with CWA labor the sanitary inspection personnel of the Division succeeded in having 989 privies built by privately employed labor during the biennium. In addition to this number of privies which were built by men trained under State supervision there have been a great many privies privately built since the CWA work came to a close on March 31. No record is available as to just how many privies have been built in this manner, but much building material had been delivered for privy construction when the CWA relief work came to a close. Indeed, three weeks prior to the cessation of this activity returns from questionnaires sent out to counties engaged in the work indicated that material actually had been delivered for 7,000 privies and that arrangements had been completed for the delivery of material sufficient for the construction of 15,000 additional privies. It is readily apparent therefore, that the CWA privy building activities not only accomplished much in actual construction but paved the way for considerable future work of this character. It is estimated that approximately 325,000 homes in the State depend upon privately constructed means of excreta disposal, or remain without such conveniences, consequently much work remains to be done. In this connection it is well to point out that the work will be continued under the Emergency Relief Administration which succeeded the CWA.

The real significance of this piece of sanitary work can best be comprehended when it is considered that during the past ten years North Carolina lost on an average slightly over 1875 human lives each year from such filth borne diseases as typhoid fever, dysentery, diarrhea, and enteritis under two years of age. These are the very diseases controlled largely by sanitation. The CWA privy campaign resulted roughly in providing sanitary privies at 10% of the homes in North Carolina needing privies. Trained health workers estimate that the annual reduction in deaths from filth borne and other diseases will approximate the percentage of privies built. But if it is assumed that providing sanitary privies at 10% of the homes reduced the deaths from filth borne and other diseases only 5% instead of 10% and that these privies will last on an average only 15 years, we have a total saving of over 1300 lives as a result of this work, to say nothing of the thousands and thousands of cases of these filth borne and other diseases which did not prove fatal but may lower the victims efficiency for life or for a long period of time. If the value of these 1300 human lives saved may be estimated roughly to be worth—shall we say \$1,000 or \$5,000 each—we have the staggering total saving of \$1,300,000 or \$6,500,000. Such is health work.

Aside from the public health value of the pit privy construction program an appreciable contribution to the President's Recovery Program resulted from its execution. Conservative estimate places at 15½ million board feet of lumber and 39 carloads of cement the quantities of building material purchased by home owners. The latter furnished all building material—the CWA provided the labor.

In addition to the more outstanding accomplishments noted above a very creditable volume of routine duties were performed by the sanitary inspection service of the Division. Some indication of the extent of this work may be obtained from the tabulation accompanying this report, in which is recorded the number of inspections made of privies, septic tanks, hotels, cafes, jails, convict camps, schools, private water supplies, roadside sanitation (filling stations), summer camps, and in addition such accomplishments as the number of times doctors and public health nurses have been assisted in arranging for, and assisting in, holding typhoid vaccination clinics and the number of homes screened.

Until the National Industrial Relief agencies appropriated money to the U. S. Public Health Service for use in supervising its relief labor in malaria control activities, this part of North Carolina's general health program had been long neglected, and from the decrease in the prevalence of this disease during the past twelve years, it appeared that only a small amount of malaria control work was necessary. Malaria has ceased to be epidemic in North Carolina. However, it is still widely prevalent and in some counties creates a considerable health hazard. During the second year of the biennium, notwithstanding the fact that drainage for malaria control had been carried on in many sections, the incidence of malaria made an alarming rise. It is pertinent to point out that in no county wherein an extensive drainage project has been executed for the control of malaria has the disease shown an increase.

It was the purpose of the Government to control this disease through the eradication of the malaria vector, which is comparatively simple, but rather expensive to the individual. The funds which were appropriated by the Government for relief purpose have given to the South its big opportunity to combat malaria. There is no yard-stick with which to measure the efficiency and the economic justification of such activities. However, it is estimated by authorities that the working capacity of an endemic malarious territory is only two-thirds of that of a territory free from malaria. The work already accomplished in North Carolina by the State Board of Health is calculated to remove the malaria hazard from approximately a half million people.

The interest of the State Board of Health is to locate those areas in which malaria is prevalent and to do the minor drainage, as well as the major drainage, and to reduce the malaria hazard in those areas. It was discovered that most of North Carolina's malaria was in the vicinity of ponded swamps, mill ponds, fish ponds, lakes, sluggish streams, clogged canals and unkept ditches.

To combat the North Carolina malaria problem the CWA appropriated to the U. S. Public Health Service a sum of money to be expended for supervision of this work. The Public Health Service appropriated its money to the various states, this money being matched with an appropriation from

the State ERA. All work was carried on in cooperation with the N. C. State Board of Health. For the four months the CWA existed, ending March 31, 1934, a personnel of one assistant State director and twelve district supervisors was maintained. The personnel was then reduced to one assistant director and seven district supervisors. These supervisors have made a thorough study of each of the malarious counties in their respective districts, and have worked up in each county the most important projects for the abatement of malaria-carrying mosquitoes.

Malaria surveys have been made in practically all of the counties to locate the areas most in need of protection, to estimate the extent of the disease, and to evolve a comprehensive drainage plan. Requisitions for such proposed projects were forwarded daily for the approval of the State ERA; many were completed under the CWA, many others were left in process of completion, while still others are being surveyed for the purpose of future malaria control work.

Fifty-three counties have taken part in the malaria control program. In most cases the work has consisted of drainage, in some counties, however, screening and mosquito proofing have been included as a part of the program.

A large part of the work of the Malaria Control work has been that of education. Malaria has ceased to be an urban problem, it is more or less a health hazard to be dealt with by the rural population. Many of the hazards cannot be justified for elimination by Government relief funds on account of the small population involved. However, there are many other ways in which the property owners can aid themselves if the people living in such areas realize the importance of malaria control and how it might be accomplished. For that reason educational work has gone on. Specifications for a properly designed canal have been publicized, malaria control literature has been made available to all people in North Carolina, and radio talks have been given whenever and wherever possible.

A summation of the results obtained by the Malaria Control Division's drainage program, through August 4, 1934, is as follows:

Number of weeks worked.....	29
Average number of workers.....	2506
Approximate number miles of canals and ditches either cleaned out or newly excavated .....	600
Number new malaria control ditches installed.....	1525
Number ponds drained .....	1262
Number acres mosquito-breeding pond area drained (high water area)	3433
* Number acres mosquito-breeding swamp area either drained or given proper outlet (approximate high water area).....	96,964

As regards dairy sanitation 97 towns were operating under the Public Health Service Milk Ordinance at the close of the biennium. According to the U. S. Public Health Service records there are more towns in North Carolina operating under the Public Health Service Milk Ordinance than in any other State in the Union, except Texas. While Texas had 117 ordinance

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\* Heavy equipment was necessary on many of the swamp projects. For this purpose 10 drag-lines were used in the Malaria Control Work. The use of dynamite, teams and tractors was also necessary on the large projects.

towns to our 97, Texas had 202 towns of over 2000 population to North Carolina's 85. During the first year of the biennium more towns in North Carolina received honorable mention in the U. S. Public Health Service Milk Ratings than in any other State except Alabama. At the end of the second year of the biennium North Carolina had moved up from second place to first place among the 31 states in which municipalities were operating under the Public Health Service Milk Ordinance. In other words, North Carolina now has more cities and towns with a municipal milk rating of over 90% than any of the other states. It is hoped that this position may be maintained.

No epidemic of any milk-borne disease has been reported during the biennium.

The conditions under which shellfish are handled and shipped have been remarkably improved during the biennium, particularly is this true as regards conditions under which shellfish are prepared and packed for the market. During the season frequent inspection is made of all shellfish shucking and packing plants. In addition many samples of water from the shellfish producing areas are regularly subjected to bacteriological examination, as are specimens of the shellfish themselves.

The personnel of the sanitary inspection service has played a considerable part in effectuating an extension and increase in the total public health facilities of the State by laying a foundation for the establishment of local health organizations through milk sanitation promotion work. The great increase in Public Health Service Milk Ordinance towns as well as the care with which the Ordinance is observed during the biennium reflects the activity of the service in this connection. Milk production and distribution supervision appeals to county commissioners in most instances in that it operates to develop the dairy industry and strikes a responsive chord in the deliberations of town boards in that a community public health safeguard is erected. After having voted to support a milk sanitation activity town and county boards become definitely public health conscious and upon such a foundation can be built a public health unit providing all the services embraced in a public health development. Rarely does a week pass that one or more members of the inspection service are not meeting with town and county boards relative to the establishment of full time sanitary inspection service.

The following statistics indicate numerically some of the activities of the Division of Sanitary Engineering during the biennium which can readily be counted:

#### Privy Sanitation—

Total number privies inspected.....	16,178
Total number privies built.....	989

#### Septic Tanks and Sewage—

Number septic tanks inspected.....	1,083
Number septic tanks approved.....	567

#### Hotels and Cafes—

Number hotels rated.....	277
Number cafes rated.....	1,374



## Dairy Inspections—

Number dairies inspected.....	4,817
Number plants inspected.....	325
City rating (dairies).....	122
Number privies improved.....	73
Number sewerage improvements.....	
Number dairy water supplies improved.....	45

## Bedding—

Number bedding manufacturers and retail bedding places inspected	3,706
Number pieces bedding condemned.....	577

## County Schools—

Number schools inspected.....	1,484
Number new school privies built.....	447

## Private Water Supplies—

Number water supplies inspected.....	3,013
Number water supplies approved.....	1,108

## Roadside Sanitation—

Number filling stations inspected.....	144
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## Jails—

Number jails inspected.....	82
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## County Prison Camps—

Number inspected .....	38
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## Highway Prison Camps—

Number inspected .....	83
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## Miscellaneous—

Number summer camps inspected.....	100
Number typhoid vaccinations.....	2,671
Municipal water supply inspections.....	552
Municipal sewerage systems inspections.....	144
Homes screened .....	297
*Number conferences with town boards regarding sewage.....	342
*Number conferences with town boards regarding water.....	411
*Number conferences with town boards regarding miscellaneous inspections .....	115
Number of railroad water supplies reported on to the U. S. Public Health Service regarding interstate carrier passenger service....	78

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\* This relates to CWA and PWA.



## DIVISION OF EPIDEMIOLOGY

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The Division of Epidemiology during the biennium has carried on the usual functions of this service.

The usual office routine consists in (1) recording and analyzing the daily reports of communicable diseases sent in by physicians of the State; (2) preparation of various spot maps, charts and graphs to visualize the distribution of these cases over the State and their relation to incidence in former years; (3) preparation of weekly bulletins showing distribution of the nine principal reported diseases in the one hundred counties, which are mailed out to all county health officers and others interested in this reporting; (4) preparation of a monthly analytical report with statement of status of infectious disease incidence for the State as a whole; (5) preparation of a weekly telegram and monthly report for the Surgeon General of the U. S. P. H. S., giving incidence of all reportable diseases; (6) distribution of blank forms, placards and informative literature pertaining to the control of communicable diseases; (7) analysis of reports for age and sex distribution for typhoid fever, pellagra, diphtheria, scarlet fever and measles; (8) the checking of death certificates for completing case reporting; (9) keeping an investigation record of each case of typhoid fever for the purpose of correlating the incidence of this disease with the sanitary status of the area where it occurs.

Special investigations of outbreaks are made by the service when the reports sent in show unusual incidence of disease in any particular area, or when help is asked by the local health officer. During the past biennium several such investigations were made. Certain unusual diseases, whose epidemiological characters are not well understood, are also investigated on the appearance of the first case. The epidemiological service has before it records of case incidence of communicable diseases for the entire State, and so is in a key position to estimate the prevalence and to know when epidemic proportions are reached. It can be re-emphasized that this judgment is based on reports received, and is liable to grave errors when reporting is not complete.

In considering the State as a whole there is still evidence of a very definite decline in the number of reported cases of typhoid fever and smallpox. In the year 1933 the number of reported cases of these two diseases reached their lowest point of incidence, and the indication in the first half of 1934 is that there will be a continued decrease. Extensive immunization campaigns against these two diseases have been carried on throughout the State for a number of years, and we feel that this record is an evidence of the effectiveness of such public health procedures. In 1932 diphtheria reached the lowest number of reported cases since reporting was begun; however, in 1933 there was an increase which was great enough to cause considerable apprehension on the part of the State Board of Health. This increase is continuing in the first six months of 1934. It is hoped that the more widespread use of toxoid in immunizing infants and young children will reduce diphtheria cases to a new minimum and that eventually this will become a rare disease. Since 1928 the number of reported cases of measles has not been exceedingly high; however, beginning the latter part of 1933 and the first half of 1934 measles

was prevalent throughout the State in epidemic proportions. For the first six months of 1934 there were 52,663 reported cases of this disease. Whooping-cough in 1933 showed a low number of reported cases. This was not true for the previous year, and in 1934 the indications are that we will have probably twice the number of cases as were reported for 1933. The other reportable diseases remain more or less constant for the State as a whole. Communities show fluctuations which, however, do not greatly influence the total number of reported cases for the entire State.

Incidence—Herewith is given the incidence by month of reported diseases for the calendar year 1933 for the State as a whole.

### Reportable Diseases—Reported Case Incidence by Months, 1933

Disease	Total	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Anthrax.....													
Chancroid.....	35	5	1	3		3	3	1	5	1	2	5	6
Chicken Pox.....	4,167	639	547	922	579	444	116	33	17	20	39	295	516
Cholera.....													
Diphtheria.....	2,497	91	76	64	73	52	36	58	138	383	726	529	271
Dysentery (Bac.).....	1				1								
Endemic Typhus.....	46	1			1	1	4	6	9	3	3	5	13
German Measles.....	187	10	11	20	43	52	4	7	7	6	8	8	11
Gonorrhea.....	2,167	167	149	197	149	175	196	186	216	195	178	184	175
Influenza.....	7,215	5289	1101	332	79	46	27	4	9	116	56	82	71
Measles.....	16,197	1219	1578	2220	2708	2885	1497	399	101	109	160	896	2425
Meningitis.....	66	8	11	5	5	1	4	5	2	4	3	10	8
Ophthalmia Neonatorum.....	9		1	1			2	1		1	1		2
Paratyphoid.....	12			1			2	2	3	2	2		
Pellagra.....	833	22	75	28	62	118	213	137	62	38	44	22	12
Plague.....													
Poliomyelitis.....	30	1	1	2	1	3	1	1	2	8	3	6	1
Psittacosis.....													
Rabies.....	1					1							
R. M. Spotted Fever.....	27							9	11	5	1	1	
Scarlet Fever.....	3,662	223	144	198	232	184	99	104	184	298	654	840	502
Septic Sore throat.....	123	12	9	15	5	5	8	3	4	18	19	12	13
Smallpox.....	35	4	4	10	1	12	1					1	2
Syphilis.....	4,570	337	362	412	344	387	499	339	404	496	341	341	308
Trachoma.....	5					3				2			
Tuberculosis.....	2,524	86	130	227	185	333	328	260	257	58	397	128	135
Tularemia.....	28	4	8	9	3	1			1				2
Typhoid Fever.....	684	17	15	15	29	44	112	171	98	76	65	24	18
Typhus (European).....													
Undulant Fever.....	15	1	3	2	1	1	1		1	1	3		1
Whooping Cough.....	7,155	459	601	481	576	812	972	743	497	345	399	530	710
Yellow Fever.....													

During the past two years, under the direction of Dr. D. F. Milam of the Rockefeller Foundation, there has been a study of the reportable diseases, which is unique in that it embraces the reported cases since 1918 for the State as a whole. The data compiled shows the number of cases reported by year, by county, and by month for the various diseases for the entire State. In addition to this, similar data was compiled for eleven major dis-

eases in eleven major cities of the State. There was also an analysis made of these figures, showing the age incidence, race and sex prevalence for certain important diseases for the five-year period, 1929-1933. It is hoped, in future morbidity bulletins, to make these studies for the years preceding 1929 and, in addition, to keep up this work from year to year. Considerable information may be gained by the study of these tables; for example, the peak of incidence in diphtheria occurs either in the third or fourth year of life. This points very definitely to the problem of diphtheria in its relationship to the age at which immunization should be stressed. Requests for these morbidity bulletins continue to come to us from distant points, as far West as the Pacific coast and as far North as Canada.

Dr. Milam also spent considerable time in reviewing the literature on a number of the less usual diseases. These reviews were compiled, mimeographed and distributed in booklet form to a wide mailing list of physicians throughout the State.

A complete revision of all the "Facts" series has been begun, with a few of those pamphlets that are less in demand yet to be revised.

A number of lectures, radio talks and newspaper articles have been released.

It is interesting to note here that since the last biennial report a disease new to this State, Rocky Mountain spotted fever, has made its appearance and may be of considerable importance to the health authorities and to citizens at large. This disease is of the eastern variety, and the mortality, while high, is considerably less than that found in Montana. The first reported case came in 1932. Last year there were reported 27 cases with six reported deaths, which gave a mortality of 22 per cent. There were evidently more cases of Rocky Mountain spotted fever than reported, but physicians were not familiar with this new disease, hence they failed to report these cases to the State Board of Health. In the first half of 1934 cases were reported at an earlier season than previously. The geographic distribution is more widespread this year, and just when the endemic level will be reached is a matter for speculation.

**COMMUNICABLE DISEASE CONTROL.** Each county medical society in the State was given the opportunity to evolve an acceptable plan for conducting immunization campaigns against typhoid fever, diphtheria and smallpox, the State Board of Health to co-operate by furnishing advertising material and free biologic products. No society availed itself of this opportunity.

In counties having full-time health organizations the State Board of Health depends upon this personnel to carry out the recommended immunization programs against typhoid fever, smallpox, and diphtheria. In counties without such full-time personnel a program has been instituted whereby the immunizations against typhoid fever and diphtheria are carried out by the regular licensed physicians of the county. This program is set forth in the following contract, which can be voluntarily entered into by the county commissioners of any county wishing to avail itself of State aid for this purpose:

# **CONTRACT FOR TYPHOID FEVER AND DIPHTHERIA IMMUNIZATION CAMPAIGN**

**For the Fiscal Year Beginning July 1, 1933**

....., N. C.  
N. C. State Board of Health, ..... 1933.  
Raleigh, N. C.

GENTLEMEN: We, the board of county commissioners of.....  
County, agree to pay to the regular licensed physicians of this county twenty-five cents (25c) for each resident of the county to whom they administer three injections of typhoid vaccine or two injections of diphtheria toxoid, provided:

1. That the immunization campaign be approved by the County Medical Society.
2. That every regular licensed physician in the county be permitted to participate in the work.
3. That no claim for compensation be submitted by the physicians for administering diphtheria immunization treatments to any person over six years of age.
4. That each physician who participates in the campaign keep an accurate record of the names, addresses and injections of each person immunized on forms supplied by the State Board of Health.
5. That these records, on completion of the campaign, be sent to the State Board of Health.
6. That the State Board of Health will certify to the county commissioners the correctness of the records and the amount to be paid to each physician.
7. That the county commissioners pay to each physician so certified an amount equal to 25 cents for each complete immunization treatment, the total amount to be stated in the certification.
8. That the county commissioners submit to the State Board of Health a statement setting forth the exact amount paid by them to the physicians participating in the campaign.
- \*9. That the State Board of Health will then reimburse the county of ..... twenty per cent (20%) of the amount actually paid to the physicians of the county if this amount has been properly certified to by the State Board of Health: *Provided, however*, that the State Board of Health's financial participation shall not be in excess of \$300.
10. The State Board of Health agrees to furnish free placards to be used in advertising the vaccination clinics, free typhoid vaccine, and free diphtheria toxoid during the campaign.

Signed.....  
Chairman, Board of County Commissioners.

Approved....., Sec.,  
County Medical Society.

Signed.....  
State Board of Health.

\*In 1934, due to lack of funds, the State Board of Health has been unable to contribute financially to any campaign against typhoid fever or diphtheria. We have been furnishing the vaccine and toxoid, however, without charge, and the placards advertising the campaigns. In the biennial report preceding this report twenty-one counties were listed which had conducted campaigns in that period. During this biennium twenty counties have conducted campaigns, with results as set forth in the following table:



## Period of July 1, 1932, to June 30, 1934

County	Date	Number Receiving Complete Typhoid Immunizations	Number Receiving Complete Diphtheria Immunizations
Anson.....	1932	12,868	5,799
Bertie.....	1932	4,036	0
Caswell.....	1932	5,853	150
Chatham.....	1932	11,322	2,103
Cherokee.....	1932	6,052	2,157
Dare.....	1932	1,524	379
Orange.....	1932	6,959	1,433
Pasquotank.....	1932	5,672	605
Swain.....	1932	4,795	1,244
Washington.....	1932	1,330	45
Alexander.....	1933	7,842	1,454
Camden.....	1933	1,888	311
Caldwell.....	1933	16,967	2,845
Cherokee.....	1933	2,979	1,213
Cleveland.....	1933	15,641	2,516
Graham.....	1933	2,328	123
Greene.....	1933	13,830	3,197
Harnett.....	1933	17,418	2,692
Montgomery.....	1934	901	129
Perquimans.....	1934	4,066	212
Totals.....		144,271	28,607
Totals (10 counties).....	1932	60,411	13,915
Totals (8 counties).....	1933	78,893	14,351
Totals (2 counties).....	1934	4,967	341

**QUARANTINE SERVICE.** In counties without full time health personnel the law requires that a quarantine officer be elected whose duty is to receive reports of communicable diseases and forward them to the State Board of Health. The State Board of Health reimburses the county quarantine officer 20 per cent of the total amount paid by the county for each month's services: *Provided, however*, the total monthly payment shall conform to the schedule of reimbursement by classification according to population.

**VENEREAL DISEASE CONTROL.** The State Board of Health has not maintained any venereal disease clinics during the past biennium. There are thirty-two counties which operate clinics for the purpose of providing anti-syphilitic treatment. It is hoped that eventually treatment facilities will be within the reach of any infected individual at any place within the State; however, there are no facilities for treatment of syphilis in many of the counties now. This work has been under the direction of Mr. Wm. D. Riley, Regional Consultant of the U. S. Public Health Service, who terminated his stay with us at the end of the biennium. Mr. Riley's services were available to the medical profession and other groups interested in the control of syphilis. An educational program, consisting of a series of lectures presented by request to the student bodies of various educational institutions



of the State, was enthusiastically received. A syphilis prevalence study was directed by Mr. Riley in November, 1932, in which the results of 3,468 Wassermann tests were tabulated and analyzed; 700, or 20.10 per cent, were found to be positive. It would be misleading, however, to draw conclusions from the figures of this survey, because it probably represents a selected group of individuals, namely, those who came seeking medical aid and, through routine Wassermann tests, were found to be infected. Through Mr. Riley's efforts a sum of money was secured from the State Administrator of Federal Emergency Relief for the purpose of purchasing and distributing anti-syphilitic drugs to be used in the treatment of individuals suffering from this disease who are unable to pay for treatment by private physicians. To provide the necessary facilities for treatment in counties in which there is no existing clinic a plan was evolved which was designated a "co-operating clinician" plan. By this plan "clinicians" who agreed to follow the "Outline of Treatment," as advocated by the U. S. Public Health Service, have received free drugs for the treatment of indigent syphilitics. This has placed the facilities for treating syphilis in fifteen additional counties in which heretofore such medical service was not available. Considerable effort has been made to secure the adoption of a standard form of treatment for syphilis. The State Board of health is desirous of having those infected with syphilis under treatment by competent physicians. It is felt that many more infected individuals will seek treatment when syphilis is regarded by both the physician and the layman as a condition requiring expert medical service rather than just punishment for moral transgression.

## DIVISION OF COUNTY HEALTH WORK

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At the beginning of the biennium, July 1, 1932, there were forty-four counties operating full time local health services. Of this number, thirty-six were under the direction of full time health officers, and in the remaining eight the service was carried on under the immediate supervision of a county health nurse or sanitary inspector.

The administration problems in connection with maintaining continuous local health services during this period have been quite perplexing, owing to the reduction in appropriations from Federal, State and local sources, which in turn necessitated budgetary changes, affecting personnel and the curtailment of important services. However, in spite of these many vicissitudes, and with the whole-hearted co-operation and personal sacrifices made on the part of our trained personnel, we have been able to continue the thirty-six whole time county health departments, with one exception, and the eight nursing or inspector counties. The department in Rutherford County was discontinued following the death of the local health officer.

On April 1, 1934, a new district health service was established in the western part of the State, embracing Haywood, Jackson, and Swain counties, through the financial assistance of the State Board of Health, the United States Public Health Service, the Bureau of Indian Affairs, and the three counties.

Financial aid was available from outside sources in sixteen counties. The United States Public Health Service contributed funds to eleven counties with full-time health departments, totaling \$13,000. Five other counties received financial support from the Rockefeller Foundation in the amount of \$10,000. The Julius Rosenwald Fund rendered financial assistance toward colored nursing service in five counties and participated financially in the syphilis control program in Pitt County. Funds from the State Board of Health for support of county health work have continued during this period. However, owing to marked reductions in the State's funds for the department, it became necessary to reduce the State allotments to standard types of local health service from \$2,400 to \$1,500 annually during the second year of the biennium. All financial aid from the U. S. Public Health Service was discontinued June 30, 1933. The Rockefeller Foundation, however, continued to render financial assistance to ten county health departments, aggregating \$10,000 annually.

At the end of the biennium, June 30, 1934, public health service is in operation in forty-six counties. This service is rendered by thirty-four health officers, five assistant medical officers, five dental officers, sixty-nine public health nurses, thirty-seven sanitary inspectors, four laboratory technicians, and thirty-six clerk-stenographers.

The per capita cost of health service in thirty-six counties with full time health departments during the fiscal year 1933-34 was .223c as compared to .251c for the fiscal year 1932-33. The per capita cost for health service in nursing or sanitary inspection health service for the fiscal year 1933-34 was 13c, the same as for the fiscal year 1932-33.

There are a number of counties not heretofore carrying full time local health service that are ready to be organized on a full-time basis. The further development of new services has not been prosecuted energetically during the past year owing to the limited funds available from this office, and then, too, it was thought advisable to lend every effort to continue existing services rather than to develop new services. With the improvement in the economic recovery the demands for local health services are becoming more pressing, and it is felt that this department should encourage the development of these services along county or district lines, particularly in view of the fact that 48.1 per cent of our rural population is without any type of full time local health service. There are a number of counties, both from the standpoint of assessed valuation and population, that are unable to maintain health services on their own resources. The plan whereby two or more counties are combined into a health district, with financial assistance from the State Board of Health, offers the best solution for providing local health service to this type of county. There are two district health departments in operation at this time, each embracing three counties.

The type of service rendered in local health departments follows closely along the lines of the public health practices and services approved by the North Carolina State Board of Health. In only a few of the larger health departments is it possible to carry out all the practices and policies recommended in this outline. A study project of public health practices and the evaluation of services rendered by the health department is being carried on in the Forsyth County Health Department in co-operation with the U. S. Public Health Service.

A revised and more comprehensive monthly report of county health activities has been prepared and put into use as of January 1, 1934.

During the month of June, 1933, the Division of County Health Work, with the assistance of the other divisions of the State Board of Health, carried on an exhaustive and intensive health survey of the Cherokee Indians located in western North Carolina, in co-operation with the N. C. Tuberculosis Sanatorium and the Office of Indian Affairs. It is believed that this survey has been one of the most complete studies of health conditions among the Indians, and that the facts gleaned from this study have been most invaluable in providing for health service for this racial group of people. This study resulted in the Congress making available \$75,000 for the erection of a general hospital, including a wing for tuberculosis at Cherokee; the establishment of a public health nursing service on the reservation; the correction of physical defects among school children and adults, and the co-ordination of health services for Indians with the local county boards of health.

Pertinent data concerning local health departments is shown in Table No. 1-A and Table No. 1-B.

The amount of work performed during the biennium of the forty-four local health departments is recorded in Table No. 2-A and Table No. 2-B.

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DETAILED STATISTICS ON ACTIVITIES OF  
DIVISION OF COUNTY HEALTH WORK

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TABLE No. 1-A—DATA ON FULL-TIME COUNTY HEALTH

County	1930 Popula- tion	Date of Organ- ization	Total Budget	
			Amount	Per Capita
Beaufort.....	35,026	1923	\$ 8,025.00	.230
Bladen.....	22,389	1921	4,006.52	.179
Buncombe (exclusive of Asheville).....	47,744	1913	18,900.00	.397
Cabarrus.....	44,331	1919	7,427.91	.167
Columbus.....	37,720	1921	3,830.77	.101
Cumberland.....	45,219	1919	9,717.73	.215
Davidson.....	47,865	1917	7,068.38	.148
Durham.....	67,196	1913	46,989.00	.700
Edgecombe (exclusive of Rocky Mount).....	37,872	1919	7,754.00	.205
Forsyth (exclusive of Winston-Salem).....	36,407	1913	24,463.00	.670
Franklin.....	29,456	1930	6,987.50	.237
Gaston.....	78,093	1928	10,271.50	.133
Granville.....	28,723	1919	8,440.00	.295
Guilford (exclusive of Greensboro and High Point).....	42,696	1911	14,040.80	.329
Halifax.....	53,246	1919	10,200.00	.191
Lenoir.....	35,716	1917	7,800.00	.219
Mecklenburg (exclusive of Charlotte).....	45,296	1918	13,180.00	.291
Moore.....	28,215	1928	5,100.00	.182
Nash (exclusive of Rocky Mount).....	41,392	1915	3,757.67	.091
New Hanover.....	43,010	1913	36,396.12	.844
Northampton.....	27,161	1917	6,310.00	.232
Pitt.....	54,466	1917	13,030.00	.239
Randolph.....	36,259	1927	3,110.35	.086
Richmond.....	34,016	1924	6,600.71	.194
Robeson.....	66,512	1912	8,002.50	.121
Rowan.....	56,665	1918	9,530.00	.168
Rutherford.....	40,452	1924	6,030.61	.149
Sampson.....	40,082	1913	8,130.00	.206
Stokes-Yadkin (Forsyth-Stokes-Yadkin Health Dist.).....	40,300	1931	8,640.00	.214
Surry.....	39,749	1919	9,312.34	.235
Vance.....	27,294	1920	4,602.10	.169
Wake.....	94,757	1918	25,872.05	.274
Wayne.....	53,013	1920	9,809.94	.185
Wilkes.....	36,162	1920	6,264.32	.174
Wilson.....	44,914	1916	7,731.60	.172
Totals.....	1,539,414		\$ 387,332.42	.251

## COUNTIES WITH NURSE OR SANITARY INSPECTOR

Alleghany.....	7,186	1930	\$ 1,800.00	.250
Brunswick.....	15,818	1924	1,940.00	.123
Caldwell.....	28,016	1931	1,875.00	.067
Craven.....	30,665	1921	5,328.00	.174
Haywood.....	28,273	1931	2,125.20	.075
Pamlico.....	9,299	1923	2,253.93	.242
Person.....	22,039	1929	3,054.38	.139
Totals.....	141,296		\$ 18,376.51	.130

\*Non-medical Health Officer. †Includes Clinician. ‡Includes Dentist.

§Includes Technician. \*\*Forsyth County Health Officer Director.



## SERVICES—NORTH CAROLINA—FISCAL YEAR 1932-33

Source of Funds and Amounts						Whole-Time Personnel				
Local Appropriation	Per Capita	State Allotment	Per Capita	Extra State Funds	Per Capita	Health Officer	Other Medical Officer	Nurse	Inspector	Clerk
\$ 4,150.00	.119	\$ 2,075.00	.060	\$ 1,800.00	.051	1	0	1	1	1
3,006.52	.134	1,000.00	.045	-----	-----	1	0	1	0	0
16,500.00	.345	2,400.00	.052	-----	-----	1	†1	2	2	1
5,227.91	.118	2,200.00	.049	-----	-----	1	0	1	0	1
3,165.30	.084	665.47	.017	-----	-----	1	0	0	0	1
5,836.48	.129	2,400.00	.053	1,481.25	.033	1	0	3	1	1
5,068.38	.106	2,000.00	.042	-----	-----	1	0	1	0	1
44,589.00	.665	2,400.00	.035	-----	-----	*1	†2	7	5	\$3
4,736.00	.125	2,368.00	.063	650.00	.017	1	0	1	1	1
22,063.00	.604	2,400.00	.066	-----	-----	1	1	5	1	1
3,600.00	.122	1,800.00	.061	1,587.50	.054	1	0	1	0	1
7,871.50	.101	2,400.00	.032	-----	-----	1	0	2	0	1
4,220.00	.147	2,110.00	.074	2,110.00	.074	1	0	1	1	1
11,610.80	.273	2,400.00	.056	-----	-----	1	†1	2	1	1
6,331.00	.119	2,400.00	.045	1,469.00	.027	1	0	2	1	1
5,400.00	.151	2,400.00	.068	-----	-----	1	0	1	1	1
10,780.00	.238	2,400.00	.053	-----	-----	1	†2	2	0	1
3,400.00	.121	1,700.00	.061	-----	-----	1	0	1	0	1
2,724.31	.066	1,033.36	.025	-----	-----	1	0	1	0	1
33,636.12	.780	2,400.00	.056	360.00	.008	1	1	5	8	\$2
2,740.00	.100	1,370.00	.050	2,200.00	.082	1	0	1	0	1
5,905.00	.108	2,400.00	.044	4,725.00	.087	1	†1	2	0	1
2,488.35	.069	622.00	.017	-----	-----	1	0	0	0	1
4,200.71	.123	2,100.00	.062	300.00	.009	1	0	1	0	1
5,302.50	.080	2,400.00	.036	300.00	.005	1	0	1	0	1
7,130.00	.126	2,400.00	.042	-----	-----	1	0	1	1	1
4,630.61	.114	1,400.00	.035	-----	-----	1	0	0	1	0
3,727.50	.091	2,100.00	.053	2,302.50	.057	1	0	1	1	1
1,820.00	.045	3,980.00	.099	2,840.00	.070	**	0	4	1	0
3,612.34	.091	1,800.00	.045	3,900.00	.099	1	0	1	1	1
3,463.77	.127	1,138.33	.042	-----	-----	1	0	0	1	0
23,472.05	.249	2,400.00	.025	-----	-----	1	†1	5	3	\$2
6,999.94	.132	2,400.00	.045	410.00	.008	1	0	1	2	1
3,604.32	.100	1,660.00	.046	1,000.00	.028	1	0	1	0	1
5,331.60	.119	2,400.00	.053	-----	-----	1	0	1	1	1
\$ 288,375.01	.187	\$ 71,522.16	.046	\$ 27,435.25	.018	34	10	60	35	35

## AS DIRECTOR OF LOCAL HEALTH PROGRAM

\$ 1,350.00	.188	\$ 450.00	.062	\$ -----	-----	0	0	1	0	0
1,552.00	.098	388.00	.025	-----	-----	0	0	1	0	0
1,500.00	.053	375.00	.014	-----	-----	0	0	0	1	0
3,996.00	.130	1,332.00	.044	-----	-----	0	0	1	2	0
1,721.45	.061	403.75	.014	-----	-----	0	0	0	1	0
1,893.93	.203	360.00	.039	-----	-----	0	0	2	0	0
2,054.38	.093	1,000.00	.016	-----	-----	0	0	1	0	1
\$ 14,067.76	.100	\$ 4,308.75	.030	\$ -----	-----	0	0	6	4	1

TABLE No. 1-B—DATA ON FULL-TIME COUNTY HEALTH

County	1930 Popula- tion	Date of Organ- ization	Total Budget	
			Amount	Per Capita
Beaufort.....	35,026	1923	\$ 6,000.00	.171
Bladen.....	22,389	1921	3,400.00	.152
Buncombe (exclusive of Asheville).....	47,744	1913	17,300.00	.362
Cabarrus.....	44,331	1919	6,456.05	.146
Columbus.....	37,720	1921	3,500.00	.093
Cumberland.....	45,219	1919	9,352.50	.207
Davidson.....	47,865	1917	6,650.00	.139
Durham.....	67,196	1913	45,245.00	.673
Edgecombe (exclusive of Rocky Mount).....	37,872	1919	6,080.00	.160
Forsyth (exclusive of Winston-Salem).....	36,407	1913	26,455.00	.726
Franklin.....	29,456	1930	4,880.00	.166
Gaston.....	78,093	1928	10,395.91	.133
Granville.....	28,723	1919	6,200.00	.216
Guilford (exclusive of Greensboro and High Point).....	42,696	1911	14,128.00	.331
Halifax.....	53,246	1919	9,600.00	.180
Lenoir.....	35,716	1917	6,800.00	.190
Mecklenburg (exclusive of Charlotte).....	45,296	1918	13,618.46	.301
Moore.....	28,215	1928	4,980.00	.176
Nash (exclusive of Rocky Mount).....	41,392	1915	3,424.31	.083
New Hanover.....	43,010	1913	29,230.80	.680
Northampton.....	27,161	1917	5,380.00	.198
Pitt.....	54,466	1917	8,400.00	.154
Randolph.....	36,259	1927	4,584.15	.126
Richmond.....	34,016	1924	5,436.24	.160
Robeson.....	66,512	1912	7,350.00	.110
Rowan.....	56,665	1918	10,245.00	.181
Rutherford.....	40,452	1924	4,150.00	.102
Sampson.....	40,082	1913	6,580.00	.164
Stokes (Forsyth-Stokes-Yadkin Health District).....	22,290	1931	3,780.00	.170
Surry.....	39,749	1919	5,900.00	.148
Vance.....	27,294	1920	5,020.75	.184
Wake.....	94,757	1918	17,380.22	.183
Wayne.....	53,013	1920	9,100.00	.172
Wilkes.....	36,162	1920	4,869.20	.135
Wilson.....	44,914	1916	7,500.00	.167
Yadkin (Forsyth-Stokes-Yadkin Health District).....	18,010	1931	3,780.00	.210
Totals.....	1,539,414	.....	\$ 343,151.59	.223

  

COUNTIES WITH NURSE OR SANITARY INSPECTOR				
Alleghany.....	7,186	1930	\$ 1,650.00	.230
Brunswick.....	15,818	1924	1,853.20	.117
Caldwell.....	28,016	1931	1,860.00	.066
Craven.....	30,665	1921	4,996.00	.163
Haywood.....	28,273	1931	2,125.88	.075
Pamlico.....	9,299	1923	2,274.15	.244
Person.....	22,039	1929	2,825.55	.128
Polk.....	10,216	1931	2,075.00	.203
Totals.....	151,512	.....	\$ 19,659.78	.130

\*Non-medical Health Officer. †Includes Dentist. ‡Includes Technician.

\*\*Forsyth County Health Officer Director.

## SERVICES—NORTH CAROLINA—FISCAL YEAR 1933-34

Source of Funds and Amounts						Whole-Time Personnel				
Local Appropriation	Per Capita	State Allotment	Per Capita	Other Agencies	Per Capita	Health Officer	Other Medical Officer	Nurse	Inspector	Clerk
\$ 3,500.00	.100	\$ 1,500.00	.043	\$ 1,000.00	.028	1	0	1	2	1
3,000.00	.134	400.00	.018	-----	-----	1	0	1	0	0
17,300.00	.362	-----	-----	-----	-----	1	0	2	1	1
5,076.05	.115	1,380.00	.031	-----	-----	1	0	1	0	1
2,975.00	.079	525.00	.014	-----	-----	1	0	0	1	1
6,665.00	.148	1,500.00	.033	1,187.50	.026	1	0	3	1	1
5,270.00	.110	1,380.00	.029	-----	-----	1	0	1	0	1
43,745.00	.651	1,500.00	.022	-----	-----	*1	†2	7	5	†3
4,700.00	.121	1,380.00	.036	-----	-----	1	0	1	0	1
24,955.00	.685	1,500.00	.041	-----	-----	1	1	5	1	1
2,500.00	.085	1,380.00	.047	1,000.00	.034	1	0	1	0	1
8,895.91	.114	1,500.00	.019	-----	-----	1	0	2	0	1
3,700.00	.129	1,500.00	.052	1,000.00	.035	1	0	1	1	1
12,628.00	.296	1,500.00	.035	-----	-----	1	†1	2	1	1
7,600.00	.143	1,500.00	.028	500.00	.009	1	0	2	1	1
5,300.00	.148	1,500.00	.042	-----	-----	1	0	1	1	1
12,118.46	.268	1,500.00	.033	-----	-----	1	†2	2	1	†2
4,080.00	.144	900.00	.032	-----	-----	1	0	1	0	1
2,724.31	.066	700.00	.017	-----	-----	1	0	1	0	1
27,490.80	.639	1,500.00	.035	240.00	.006	1	1	5	8	†2
3,100.00	.114	1,380.00	.051	900.00	.033	1	0	1	0	1
5,900.00	.108	1,500.00	.028	1,000.00	.018	1	0	2	0	1
3,498.75	.096	617.40	.017	468.00	.013	1	0	0	0	1
3,756.24	.111	1,680.00	.049	-----	-----	1	0	1	0	1
5,850.00	.088	1,500.00	.022	-----	-----	1	0	1	0	1
8,745.00	.154	1,500.00	.027	-----	-----	1	0	1	1	1
3,500.00	.086	650.00	.016	-----	-----	1	†1	0	0	1
4,080.00	.102	1,500.00	.037	1,000.00	.025	1	0	1	0	1
1,600.00	.072	1,380.00	.062	800.00	.036	**	0	2	0	0
3,400.00	.085	1,500.00	.038	1,000.00	.025	1	0	1	1	1
3,640.75	.133	1,380.00	.051	-----	-----	1	0	0	1	1
15,880.22	.167	1,500.00	.016	-----	-----	1	†1	3	2	†2
7,600.00	.144	1,500.00	.028	-----	-----	1	0	1	2	1
3,969.20	.110	900.00	.025	-----	-----	1	0	1	0	1
6,000.00	.134	1,500.00	.033	-----	-----	1	0	1	1	1
1,600.00	.089	1,380.00	.077	800.00	.044	**	0	2	0	0
\$ 286,343.69	.186	\$ 45,912.40	.030	\$ 10,895.50	.007	34	9	58	32	38

## AS DIRECTOR OF LOCAL HEALTH PROGRAM

\$ 900.00	.125	\$ 300.00	.012	\$ 450.00	.063	0	0	1	0	0
1,702.00	.108	151.20	.009	-----	-----	0	0	1	0	0
1,470.00	.052	390.00	.014	-----	-----	0	0	0	1	0
3,996.00	.130	1,000.00	.033	-----	-----	0	0	1	2	0
1,825.88	.064	300.00	.011	-----	-----	0	0	0	1	0
1,989.15	.214	285.00	.030	-----	-----	0	0	2	0	0
2,525.55	.115	300.00	.013	-----	-----	0	0	1	0	1
-----	-----	420.00	.041	1,655.00	.162	0	0	1	0	0
\$ 14,408.58	.095	\$ 3,146.20	.021	\$ 2,105.00	.014	0	0	7	4	1

TABLE No. 2-A—COMPILATION OF COUNTY HEALTH ACTIVITIES

JULY 1, 1932 TO DEC. 30, 1933

## COMMUNICABLE DISEASE CONTROL

## REPORTABLE DISEASES

	Cases	Quarantined by Mail	Quarantined by Visit	Return Visits
Cerebrospinal Meningitis.....	33	3	30	31
Chancroid.....	45			
Diphtheria.....	1,766	288	1,478	1,876
Gonorrhea.....	1,693			
Measles.....	11,036	3,757	7,279	3,697
Poliomyelitis.....	19	5	14	9
Scarlet Fever.....	3,044	327	2,717	2,128
Smallpox.....	20		20	16
Syphilis.....	4,277			
Tuberculosis.....	868			325
Typhoid Fever.....	682	43	639	941
Whooping Cough.....	5,567	1,438	4,129	1,194
Others.....	10,958			3,079

## CONTROL PRACTICES

	Number
Diphtheria released without culture.....	253
Diphtheria released on one negative culture.....	246
Diphtheria released on two negative cultures.....	513
Typhoid released on negative culture.....	30
Laboratory examinations for typhoid carrier.....	407
Laboratory examinations for typhoid carrier in milk and food handlers.....	1,131
Smallpox contacts vaccinated.....	326
Child contacts to Scarlet Fever quarantined 7 days.....	4,377
Medical or nursing service to Ophthalmia Neonatorum.....	252
Diagnostic consultations to communicable diseases.....	3,227

## HOSPITALIZATION

Typhoid.....	73
Diphtheria.....	49
Scarlet Fever.....	13
Smallpox.....	

## IMMUNIZATIONS

Completed toxin-antitoxin, preschool children.....	24,381
Completed toxin-antitoxin, school children.....	22,461
Completed anti-typhoid inoculations.....	261,097
Smallpox vaccinations, first grade school children.....	42,945
Smallpox vaccinations, other than first grade school children.....	21,641

VENEREAL DISEASE CONTROL

	New Cases at Clinic	Total Cases at Clinic	Number Treatments Given	Discontinued Cases Returned
Syphilis.....	8,255	17,933	85,772	4,222
Gonorrhea.....	3,162	1,955	2,936	2,126
Chancroid.....	296	609	3,599	128

## TUBERCULOSIS CONTROL

Nurses' visits to cases or contacts.....	11,795
Nurses' visits to post sanatoria cases .....	1,690
Visits to physicians or clinics for diagnosis or treatment.....	16,308
New cases registered with physicians or clinics for diagnosis or treatment.....	3,586
New cases hospitalized: (1) Incipient.....	233
(2) Advanced.....	308
(3) Under 15 years of age.....	869
Patient days in hospital.....	145,315
Children completing 6 weeks: (1) Open air class room.....	127
(2) Preventoria.....	339
(3) Day camp.....	30

HEALTH OF THE CHILD  
PRENATAL

## PRENATAL

New prenatal cases visited by nurse.....	5,463
Nurses' visits to prenatal cases.....	8,776
Prenatal visits to physicians.....	3,133
Cases delivered in hospital.....	1,504
Midwives instructed and registered.....	2,421

INFANT

Nurse visits to infants under one year.....	27,652
Visits infants under one year to physicians.....	13,211
Visits infants under one year to nurses' conference.....	3,075

## PRESCHOOL CHILD

Nurses' visits to children ages 1-5 years.....	26,064
Visits children ages 1-5 years to medical conference.....	17,941
Visits children ages 1-5 years to nurses' conference.....	3,532



## HEALTH OF THE CHILD—CONTINUED

## SCHOOL CHILD

Number schools children some grade weighed: (1) First.....	71,707
(2) Second.....	32,572
Number schools notification of weight sent to parents: (1) First.....	21,416
(2) Second.....	19,129
Number underweights weighed: (1) Every 2 weeks.....	9,641
(2) Every 4 weeks.....	47,566
School children examined by physician.....	89,495
Hours spent in examination by physician.....	4,989
Number schools in which physician examined children.....	1,624
Number parents present at time of examination.....	6,906
School children, vision, hearing and measurements made by teacher or nurse.....	133,448
School children inspected by physician or nurse.....	356,688
School children having teeth filled.....	33,472
School children having teeth extracted.....	30,074
School children having teeth cleaned.....	42,260
School children having glasses fitted.....	1,124
School children having tonsil and adenoid operations.....	7,546
School children having orthopedic defects corrected.....	339
School children with heart or lung defects placed under physician.....	1,597
Nurses' visits in behalf of grade school children.....	41,914
School children visiting nurses' conference.....	5,193
Number parents present at nurses' conference.....	1,272
School buildings inspected once per year.....	3,064

## SANITATION

Sanitary inspections and reinspections.....	348,642
Food handlers examined.....	10,456
Dairy cows tuberculin tested.....	18,837
Dairy farms inspected.....	13,872
Rural water supplies improved.....	1,466
Rural privies built or improved.....	12,577
Urban privies built or improved.....	5,777
Sewer connections.....	1,022

## LABORATORY

Examination for diphtheria.....	5,727
Examination for typhoid.....	1,700
Examination for tuberculosis.....	1,398
Examination for syphilis.....	26,119
Examination for gonorrhea.....	1,565
Examination of milk samples.....	16,628
Examination of water samples: (1) Public supplies.....	9,018
(2) Rural semi-public.....	3,277
Examination, others.....	14,623

## POPULAR HEALTH INSTRUCTION

Number health pamphlets, placards, etc., distributed .....	245,019
Articles on health published in newspapers.....	2,621
Lectures or talks on health .....	4,513
Showing of motion pictures on health.....	2,039
Special demonstrations to promote health work.....	584

## COUNTY PHYSICIAN REPORT

Examination, prisoners.....	11,309
Examination for marriage.....	2,682
Examination, teachers.....	7,617
Examination, child for industry.....	1,965
Examination by court order.....	439
Examination for admission to institution.....	1,579
Examination for lunacy .....	1,173
Examination, postmortem.....	211
Visits to jail .....	6,838
Visits to convict camp.....	320
Visits to county home .....	6,183
Visits to county tuberculosis hospital.....	1,389
Completed anti-rabic treatments .....	481
Treatment, hookworm.....	842

TABLE No. 2—B—COMPILATION WHOLE-TIME COUNTY HEALTH DEPARTMENTS

JANUARY 1, 1934 TO JUNE 30, 1934

## POPULATION (1930)

Age	Indian	White	Colored	Urban	Rural	Total
Under one year.....	469	27,242	12,532	7,677	32,566	40,243
One to five years.....	1,920	118,289	56,604	36,202	140,611	176,813
Five to fifteen years.....	4,551	283,739	144,197	91,918	340,569	432,487
Fifteen years and over.....	8,042	732,670	322,061	260,934	801,839	1,062,773
Totals.....	14,982	1,161,940	535,394	396,731	1,315,585	1,712,316

## VITAL STATISTICS

	Indian	White	Colored	Total
Births, live.....	226	8,118	4,578	13,015
Births, still.....	3	198	241	466
Deaths, total.....	37	3,805	2,455	6,344
Deaths, puerperal.....	2	18	13	33
Deaths under 1 month of age.....	12	300	206	608
Deaths under 1 year of age.....	5	318	278	601

## REPORTABLE DISEASES

	Reported by—						Colored	No. Quarantined		Number of Deaths	Total Number Visits to Cases	Number Cases Hospitalized
	M. D's.	Health Officer	Nurse	Teacher	Other	Indian		By Mail	By Visit			
Chancroid.....	13	6					9		1		1	
Diphtheria.....	208	3	11		2	1	16	39	175	15	235	11
Endemic Typhus.....	1								1			
Gonorrhea.....	448	210			3	1	329	4	5		57	3
Influenza.....	547	6	67		6	1	451	139	255	24	36	1
Measles.....	7,583	2,289	10,435	2,064	9,658	1	23,760	7,009	22,813	22	21,347	21
Meningococcus Meningitis.....	7						3	2	3	6	4	1
Pellagra.....	89	49	113		24	3	211	6	4	13	154	2
Poliomyelitis.....	6						6			1	4	2
Rocky Mtn. Spotted Fever.....	7						7	16	212	9	313	
Scarlet Fever.....	495	23	45	6	11		19	50	477	6	636	5
Smallpox.....	7						7				2	
Syphilis.....	1,022	712	1		9	4	288	1,138	2	6	318	2
Tuberculosis.....	157	13	5		1		76	74	7	109	161	9
Typhoid Fever.....	42	2	2				24	15	34		44	13
Undulant Fever.....						1	1		1		1	
Whooping Cough.....	1,306	709	937	161	2,097	27	4,518	1,206	3,930	13	3,880	1
Others.....	764	187	817	132	1,169		430	395	1,915	683	2,129	2

## CONTROL PRACTICES

	Number Persons Examined			Number Examinations Made		
	Indian	White	Colored	Negative	Positive	Total
Diphtheria—(1) Cultures.....	1	445	67	523	18	547
(2) Virulence Tests.....		9	1	10		10
Typhoid Fever—(1) Blood Culture.....		13	13	23	6	31
(2) Urine Culture.....		72	60	132		150
(3) Stool Culture.....		335	165	499	3	535
(4) Agglutination Test.....		9	16	46	5	71
Undulant Fever.....		4	3	6	1	7
Typhus or Rocky Mountain Spotted Fever.....		2	1	3	1	6
Meningococcus Meningitis.....		2		1	1	2
Malaria.....	52	1,589	662	116	16	2,849
Syphilis (Serological Tests).....	49	1,864	4,642	4,876	1,389	7,019
Gonorrhea (Smears for Gonococci).....		200	97	186	129	371
Intestinal Parasites.....	9	2,069	1,453	2,886	668	3,555
Tularemia.....		1		1		1
Rabies.....	4	31	17	13	15	85
Para-typhoid.....		1		1		1
Tuberculosis.....	3	368	93	364	125	513
Other.....		211	128	147	91	395



## IMMUNIZATIONS

	Immunizations				By Whom			
	Indian	White	Colored	Total	Health Officer	Nurse	Combined Personnel	Other
Number Children Schick Tested—Positive.....		930	512	1,442	281	142	644	
Number Children Schick Tested—Negative.....		5,552	1,901	7,453	2,133	1,807	2,567	
Diphtheria Immunizations—(1) Infants.....		1,868	304	2,226	666	603	913	12
(2) Preschool.....	13	4,834	806	6,852	2,106	1,679	2,421	24
(3) Grade School.....		2,025	2,439	4,850	637	1,317	2,036	
(4) Other.....		49	11	60	31	12	16	
Typhoid Immunizations (Complete).....	554	39,975	11,520	52,669	13,581	20,210	17,614	17
Smallpox Vaccinations—(1) Infant.....		440	23	463	4	50	409	
(2) Preschool.....	28	9,561	857	11,083	2,014	2,989	5,478	5
(3) Grade School.....	600	7,935	9,147	18,552	1,368	10,369	5,343	
(4) Other.....		636	155	2,972	234	422	2,275	1

## VENEREAL DISEASE CONTROL

	Syphilis				Gonorrhea				Chancroid			
	Indian		White		Colored		Indian	White		Indian	White	
	M.	F.	M.	F.	M.	F.		M.	F.		M.	F.
New cases attending clinic.....	5	431	832	805	3	234	113	160	14		33	2
Old cases attending clinic.....	4	2,451	2,253	2,622	1	1,026	250	251	31		32	6
Number discontinuing without per- mission.....	1	59	363	327		3	1	32	3			
Number doses arsenical.....	19	2,719	2,527	5,594		1,357	13	48			232	1
Number doses Bi. or Hg.....	2	685	2,626	2,823	13	34	29	148	1			

## TUBERCULOSIS CONTROL

	Indian	White	Colored	Total
Old cases visited.....	-----	1,262	731	2,115
New cases brought under supervision.....	-----	414	312	738
Number of visits to new cases.....	1	469	483	970
Number of visits to old cases.....	1	1,406	917	2,490
Number of suspects examined.....	7	1,206	635	1,919
Number of contacts examined.....	-----	517	263	883
Number of cases hospitalized.....	-----	276	190	472
Number of clinics held.....	-----	159	39	245
Number of patients attending clinics.....	11	10,130	3,000	13,141
Number of tuberculin tests—(1) Positive.....	-----	2,509	770	3,296
(2) Negative.....	-----	13,648	2,452	16,105

## MATERNAL HYGIENE

	Before 5th Month of Pregnancy			After 5th Month of Pregnancy			Total		
	Indian	White	Colored	Indian	White	Colored	Indian	White	Colored
New prenatal cases under supervision.....	31	552	536	121	809	1,185	152	1,543	2,042
Number of old prenatal cases visited.....	4	340	373	44	797	807	48	1,499	1,489
Number of hospital deliveries.....	1	22	3	-----	110	40	7	508	242
Number of deliveries by physicians.....	-----	78	6	-----	1,960	333	66	3,311	1,116
Number of deliveries by midwives.....	-----	6	62	-----	319	921	52	547	2,105
	Before 2nd Week			After 2nd Week			Total		
Number of postnatal patients visited.....	2	481	407	3	589	455	6	1,312	1,170
(1) With prenatal supervision.....	1	312	271	1	291	402	3	817	793
(2) Without prenatal supervision.....	3	151	139	1	230	295	4	516	543

## INFANT HYGIENE

	Before 2nd Week			After 2nd Week			Total		
	Indian	White	Colored	Indian	White	Colored	Indian	White	Colored
Infants under supervision (new).....	13	662	493	16	1,018	827	29	2,197	1,588
Number of infants supervised (old).....	15	310	335	4	1,949	1,807	19	3,375	2,748
Number of visits to infants.....	13	803	539	15	3,250	2,208	37	5,546	3,468
Number of conference visits.....	7	274	271	9	1,025	571	16	2,642	1,712

## PRESCHOOL HYGIENE

	Indian	White	Colored	Total
Preschool children under supervision (new).....	78	9,057	1,813	10,977
Number of preschool children supervised (old).....	19	5,582	1,154	6,785
Number of visits to preschool children.....	64	10,226	2,686	13,644
Number of conference visits.....	81	5,512	1,323	7,131
Number of preschool children examined.....	42	14,517	1,805	16,541
Number of preschool children free of correctible defects.....	11	3,832	356	4,201

## SCHOOL HYGIENE

	Indian	White	Colored	Total
Number of schools visited.....	8	2,556	1,453	4,069
Number of visits to schools.....	12	5,730	2,536	8,639
School population: (1) Grade school.....	474	58,847	40,883	100,448
(2) High school.....	28	11,067	3,528	14,756
School enrollment: (1) First grade.....	105	17,238	20,871	37,459
(2) Second grade.....	49	13,750	8,209	23,892
(3) All grades.....	268	79,262	57,821	137,827
(4) High school.....	28	19,867	3,254	23,171
Number first grade school children inspected or examined..	339	21,944	13,435	51,913
Number second grade school children inspected or examined..	211	14,549	7,097	22,162
Number grade school children inspected or examined.....	875	92,163	37,422	132,238
Number high school children inspected or examined.....	164	11,115	1,877	14,591
Number of first grade school children free of correctible defects.....		4,730	3,301	8,031
Number of second grade school children free of correctible defects.....		4,546	2,135	6,680
Number of grade school children free of correctible defects..		15,889	9,855	25,614
Number of high school children free of correctible defects.....		1,740	402	2,142

## SANITATION

	Homes	Dairy Farm	Food Estab.	School	Other	Premises			
						Rural		Non-rural	
						White	Colored	White	Colored
Number of premises visited.....	53,565	2,013	6,219	1,050	1,822	15,299	4,655	14,156	10,173
Number of visits.....	85,455	2,913	8,688	1,055	2,858	12,566	6,065	23,513	18,585
Number of premises with sanitary excreta disposal system.....	25,866	396	2,387	296	152	3,366	1,182	2,328	1,001
Number of premises with insanitary excreta disposal system.....	18,022	37	21	129	110	3,540	883	3,468	1,897
Number of premises with no sanitary excreta disposal system.....	4,579	2	10	25	58	248	59	494	200
Number of premises with safe water supply.....	28,199	944	3,251	285	163	2,380	655	3,133	807
Number of premises with unsafe water supply.....	3,916	2	2	49	5	612	63	309	110
Number of premises with questionable water supply.....	6,089	4	6	57	14	765	600	1,893	813
Number of premises with no water supply.....	1,321	13	-----	36	37	118	41	139	64
Number of premises properly screened.....	2,981	584	2,013	-----	45	1,199	54	1,138	148
Number of water sample tests.....	554	41	33	68	663	158	22	191	25
Number of milk sample tests.....	137	3,785	318	5	204	295	-----	40	7
Number of food handlers examined.....	270	158	1,845	6	382	221	59	225	214
Number of dairy cows tuberculin tested.....	180	5,944	-----	-----	74	771	-----	20	-----
Number of rural water supplies improved.....	158	9	2	52	118	102	-----	17	-----
Number of privies built or improved.....	18,370	59	22	396	688	3,872	725	4,229	1,219
Number of sewer connections.....	457	8	2	7	53	51	2	186	302

## LABORATORY

Examination for diphtheria.....	699
Examination for typhoid.....	587
Examination for tuberculosis.....	829
Examination for syphilis.....	8,811
Examination for gonorrhea.....	574
Examination of milk samples.....	4,497
Examination of water samples: (1) Public supplies.....	2,399
(2) Rural semi-public.....	1,156
Examination, others.....	5,249

## POPULAR HEALTH INSTRUCTION

Number health pamphlets, placards, etc., distributed.....	183,604
Articles on health published in newspapers.....	1,179
Lectures or talks on health.....	2,227
Showing of motion pictures on health.....	53
Special demonstrations to promote health work.....	655

## MEDICAL CARE

	Indian	White	Colored	Total
Number of patients treated or examined in home.....	20	2,499	1,168	3,738
Number of home visits.....	17	3,363	2,359	6,815
Number of patients treated or examined in office.....	218	11,529	9,365	23,754
Number of office visits.....	238	14,393	10,484	29,565
Number of patients treated or examined in county jail.....	9	2,252	2,049	4,963
Number of visits to county jail.....		739	357	2,370
Number of patients treated or examined in county home.....	33	5,236	2,614	8,644
Number of visits to county home.....		645	242	1,943
Number of visits to county tuberculosis hospital.....		143	44	364
Number of completed anti-rabic treatments.....		151	21	180
Number of treatments, hookworm.....	25	365	85	465
Number of patients treated or examined in clinics.....	64	19,090	6,846	30,392
Number of clinic visits.....	58	6,892	6,969	16,011
Number of examinations, prisoners.....	20	891	1,240	2,982
Number of examinations for marriage.....		140	62	220
Number of examinations, teachers.....		21	19	55
Number of examinations, child for industry.....		227	82	364
Number of examinations by court order.....		82	46	140
Number of examinations for admission to institution.....	14	247	129	425
Number of examinations for lunacy.....	1	199	110	391
Number of examinations, postmortem.....		30	30	68



## SUMMARY

	Health Officer			Nurse			Sanitary Inspector		
	Indian	White	Colored	Indian	White	Colored	Indian	White	Colored
Number of homes visited.....	62	3,619	1,705	45	33,408	13,710	430	27,352	9,779
Number of persons served in office.....	175	17,647	10,658	10	13,191	4,453	133	974	322
Number of schools visited.....	14	1,137	302	-----	2,329	1,205	15	391	162
Number of dairy farms inspected.....	-----	145	3	-----	120	1	1	2,369	129
Number of food handling establishments inspected.....	10	37	21	-----	4	-----	-----	7,749	945
Number of administrative conferences attended.....	43	1,885	442	16	639	194*	59	962	69
Number of office clinics attended.....	76	697	1,171	26	438	279	76	23	10
Number of school clinics attended.....	1,523	644	6,513	-----	1,628	339	1,523	336	-----
Number of field clinics attended.....	28	968	194	25	797	437	-----	51	-----

## ANNUAL REPORT NORTH CAROLINA STATE BOARD OF HEALTH TO CONJOINT SESSION STATE MEDICAL SOCIETY, APRIL 19, 1933

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By DR. JAMES M. PARROTT

*Secretary and State Health Officer*

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In obedience to the mandates of law and custom I have the honor to present my report for the year ending April 1, 1933, to the conjoint session.

The biennial report of this department, a copy of which many of you have and which each of you may obtain for the asking, contains much interesting and more or less complete data concerning the history of the Board, its services and policies.

*The Division of Preventive Medicine* continues to be directed and, too, with his usual efficiency and satisfaction, by Dr. G. M. Cooper. Dr. Cooper is leading the annual immunization campaign against diphtheria this year. During this time he is utilizing his six regular staff nurses, who are assigned to special activities of an organizing, teaching and inspirational character in counties having no form or pretense of health service.

I believe we are justified in pointing with increasing pride to the improvement in the *Health Bulletin*. The demands for this publication are steadily increasing, particularly in the schools.

I am happy to report, largely because of the efforts of this division, that the infant death rate for 1932 was 66.1 per 1,000 live births, this being more than six points lower than any year since the vital statistics records have been kept.

No doubt, as a result of several years educational work, the death rate from pellagra for 1932 was lower than in any year since 1926. It is a source of pride that this division of the Department of Health originated and began the program which is now called the "Live-at-Home" campaign. This has been the means of a definite reduction in illness and has materially helped our economic situation.

During the year the Division of Preventive Medicine has given much time to improving the efficiency of midwives. An effort was made to secure the passage of an act by this General Assembly looking toward better regulations of this service. Unfortunately this bill was defeated, largely because of a misunderstanding on the part of a number of legislators. The division, however, has recourse to rules and regulations under county authorities, and efforts will continue unabated in that direction, subject only to the limits of proper assistance, which in turn is limited by scarcity of available funds.

Public health will have to realize that it is more and more dependent on education, and with this fundamental idea in view the Division of Preventive Medicine will continue to press with increasing vigor its educational program. Right now we are dreaming of that great time for North Carolina when our people will think subconsciously in terms of health, and when mothers learn to carry their children routinely to their physicians and dentists for immunization and preventive service.

*The Division of Sanitary Engineering* continues under the efficient direction of Mr. Warren H. Booker. It is a never-ending source of surprise that this service can be carried on so well for so little money. As is well known, its scope includes all non-medical activities of the Department of Health, embracing among other things water supplies, sewage disposals, milk, shellfish, school, rural and industrial sanitation, general and specific advice to all State departments and state-owned or directed institutions and hotel, cafe, summer camp and bedding and privy service.

The design of the privy recommended by the division has been simplified and cheapened. We now have better plans for sewage treatment plants for families, small institutions, and communities up to 500 population, than almost any other State.

A special drive has been made to improve the sanitation of jails, prison camps, and State institutions as required by law.

The most outstanding piece of work accomplished during the period under consideration was the bringing to many sections of the State a milk supply of a higher quality and of a more sanitary type. North Carolina has more towns and cities operating under the U. S. Public Health Service Milk Ordinance than any other State except Texas. We believe that we have better designed plans for sanitation of dairies than almost any State Health Department in the country.

During last fall a detailed sanitary survey was made of all our mountain country and the immediate and remote approaches to the national park. Data obtained is valuable and will be of much assistance in developing western North Carolina. Lack of funds has prevented our following up the survey as closely as we had anticipated.

We have not been able to extend our sanitary survey activities to the playgrounds on the coast, but we hope to get to them early in the summer.

The people of North Carolina badly need the benefit of tourist business. The department is determined to do its full duty in this respect.

In response to the increasing demand of industries, individuals, and communities for a more thorough and intelligent mosquito control, the Board is undertaking to provide special expert service for this purpose. Through the courtesy of the Rockefeller Foundation one of our junior sanitary engineers has had an intensive training in one of the best mosquito control laboratories in this country located in Florida. His services and advice are now available to all.

*The Division of Oral Hygiene* continues under the direction of that remarkable man, Dr. Ernest A. Branch. The service is extensive and is very superior. In a great way the dentists are teaching the relation of an unclean mouth to systemic disease, didactically in the classroom and through demonstration. The work will be completed more or less satisfactorily in about sixty counties during the school year.

This division at times plays an important part in the control of transmissible diseases.

It would be difficult indeed to estimate the public health value of this activity. Dentists and the dental profession are supporting health work with increasing loyalty and efficiency.

*The Division of Epidemiology, County Health Work and Vital Statistics.* Directed by Dr. Hamilton, these services have consistently and progressively improved in spite of many handicaps and a constant lessening of available funds. Forty-four counties have some form of county health work. A definite effort has been and is being made to improve the character of this type of service. The lack of personnel sufficiently trained, plus insufficient funds, plus a misunderstanding on the part of the public, and in many instances of the medical profession, as to the scope of public health work, has materially retarded county health activity and its expansion and development.

We are now allocating to county health units approximately \$85,000 in cash annually. I am deeply, yes, very deeply, pained to announce that this will have to be materially, even drastically, reduced because of insufficient funds.

Dr. Mark V. Ziegler, who has been with us through the courtesy of the U. S. Public Health Service since October, 1931, renders valuable assistance, particularly in our county health activities. However, his broad grasp of public health in all its ramifications is very helpful in every department. For his wise counsel we are indeed grateful.

Dr. D. F. Milam, charming gentleman as well as learned scientist, continues with us and is rendering valuable assistance in the Division of Epidemiology. All the morbidity reports from all the physicians in the State converge in this service. A trained observer can take reports of sickness, even in their incompleteness, and from them read the signs of impending epidemics. This watchfulness is a function of the State Department of Health. It can and does do much to limit the extent of transmissible diseases.

Recently we issued a booklet containing a summary of reports of communicable diseases for the fifteen years since reporting was established in this State. This booklet, together with the current weekly reports of morbidity and the yearly mortality report of the Board, has placed in the hands of physicians much worthwhile information regarding disease conditions in the State.

The report of the Division of Vital Statistics, while shorter than usual, is perhaps more illuminating and more valuable than ever before.

This service is being worked over, modernized, and its information made more easily available.

I am happy to report a continued fall in the death rate in North Carolina. We now have the lowest of any state save, perhaps, three or four. For the first time our death incident is less than ten. Infant mortality has dropped to the lowest point in our history. It is stimulating to compare this present rate of 66.1 to 89.6 in 1915.

You will be pleased to note that while the typhoid death rate in 1915 was nearly 32, it is now approximately 5. Diarrhea and enteritis was 72.9 in 1915, and is now 17.3. The provisional death rate in North Carolina in 1932, all causes, was 9.6. The provisional rate for all causes, exclusive of homicides, suicides, and accidents, over which the Department of Health has no control, was 9 even.

At a meeting of the Board in July, 1932, a special committee was appointed to consider the syphilis problem in North Carolina, and in a remote, collateral sort of way, the entire venereal disease situation. Dr. Grady Dixon,



of Ayden, a member of the Board, was designated chairman of the committee. Dr. Dixon has thrown himself into this service in a commendable way and has given freely and unstintedly of his time and ability to studying the problem and without cost to the State.

The Public Health Service has loaned us one of the outstanding syphilographers of this country, William D. Riley, to aid in this work. The committee has formulated certain plans as a result of a careful state-wide survey. In this study, 685 physicians out of 1,344 who were invited, participated. The doctors did so without charge and with their usual commendable enthusiasm. Lacking their aid the whole plan would have failed. I take this means to express my deep appreciation officially and personally to the profession of North Carolina. They always respond to the call of the State in a great and mighty way.

During the recent year the Department of Health received its greatest loss in the death of that splendid, cultured Christian gentleman and learned scientist, and great North Carolinian, Dr. Clarence A. Shore. The Legislature took official cognizance of the death of Dr. Shore by passing a resolution designating the Laboratory building as the "Clarence A. Shore State Laboratory of Hygiene Building." This is the first time in the history of the State that such legislative recognition has been given a man of medicine.

Appropriate exercises commemorating this were held yesterday and the program, together with the addresses, will be filed in the permanent archives of the Department.

Every possible effort will be made to carry on the Laboratory service on the same high plane as it was during the administration of Dr. Shore. Of course, the profession and the public must recognize the fact that this will be an ideal which will be difficult indeed to attain.

Without consuming too much of your time it is not possible to give a fair summary of the work of the Laboratory. It is rendering a service to the State which, if paid for at present retail prices, would cost the people approximately a million dollars a year. The net appropriation by the State to the Laboratory is \$42,618 annually.

It has been suggested that all of the departments of the Laboratory, except water analysis, be discontinued in these distressing times. I am positively of the opinion that the closure or further delimiting of the service of the Laboratory would make public health work in North Carolina almost an impossibility. This administration will not lessen the activities of this service without vigorous protest and desperate objections.

The idea has been advanced that the Laboratory should be self-supporting. There are those who disagree with your Secretary and State Health Officer, but it is my opinion that this would be a serious mistake under normal economic conditions; that it would be a tragedy in these years of financial stress to increase the charges for biologics for which we are now charging and to charge for those which we are now distributing free. The people cannot stand this extra expense now and I strongly oppose it.

Our work is even now seriously handicapped because of the fact that we have to charge a small price for diphtheria toxin-antitoxins, toxoids, and antitoxins and for anti-rabies vaccines and tetanus antitoxin.



We have already noted a decided decrease in immunizations against diphtheria, due in a large measure to charges which we are forced to make for toxoids and antitoxins. To increase the price or to charge for other immunization biologies would definitely and certainly cause a rise in death rate and morbidity in the commonwealth.

The Laboratory is rendering a service to the people which is of incalculable and inestimable value. Dark indeed would be that day for our State should the Laboratory be hampered in the least in its activities. It would be difficult to visualize North Carolina without this service.

Instead of decreasing the activities of the Division of Laboratories, the wise, proper and constructive thing for North Carolina to do would be to increase them, and increase them materially.

In view of the fact that the 1933 session of the General Assembly has not completed its labors, it is deemed unnecessary and inadvisable to discuss legislation which it has passed or may pass affecting directly the Health Department.

It is believed by us that thoroughness in reporting diseases is increasing. However, frankness impels me to say that it is not as complete as it should be. I take this opportunity to request the physicians in the State to report as promptly and as accurately as possible. I know the doctors are interested and anxious to help. We appreciate it. Reporting transmissible diseases is an important matter to the physicians, the dentists, and our service.

I am sure that even the casual observer has noticed and has appreciated the remarkable development of public health practices throughout the world and particularly in North Carolina in the recent twenty years.

It would be interesting to review the development and trend of public health work. Some one has well stated that "early health practices were born of fear and hope—fear of yellow fever, typhoid fever and smallpox, and hope that rigid quarantine and isolation would stamp out disease epidemics," and thus we developed the era of shotgun quarantine. This proved an idle dream and vanished before the inexorable law of experience.

With the discovery of disease-producing organisms, the idea became universal that the control of transmissible diseases could be effected by way of disinfection. This proved, in part, a delusion. There were many failures, due largely to the fact that we overlooked carriers and that many cases were not reported.

The next step in the progress of public health was in the field of Education. It is the most powerful permanent public health agency. It is a slow process, to be sure. It must be extensively followed. Nevertheless, when the public is thoroughly educated, a result is obtained which is of the greatest value.

The recognition of the value of education was a logical step to the next development, the Promotion and Conservation of Health. This necessitated the correlation of the activities of professional and non-professional agencies.

The Promotion and Conservation of Health has brought us to that period when we are thinking not only in terms of fewer deaths but of lowered morbidity, and, even more important than these, increasing the efficiency and the happiness of the individual.

In the development of public health practices we have reached the point when it must be considered essentially as a specialty in medicine, and those who practice it specialists. A few years ago we thought any physician was qualified to handle public health work. The knowledge of modern sanitation has broadened and extended and modern preventive medicine, together with all that this means, has made it impossible for one to practice public health satisfactorily without extended special training and properly guided experience. Hit-or-miss methods have no place in modern health work.

It must be definitely understood that the general practitioner is the basis of public health work and is the most valuable of all its agencies. There will never come a time when health service is detached from the practice of medicine.

I am sure that you join me in feeling a deep sense of regret that it has appeared necessary to greatly reduce the appropriations from your Department of Health. While comparisons are usually odious, it is not out of order for me to invite your attention to the fact that the average per capita appropriation of state departments of the United States is 12 cents while we are spending less than 8 cents. It is interesting to note in this connection that our sister State of Virginia spends 17 cents, South Carolina 10 cents, and Tennessee 14½ cents. It is distressing to contemplate the fact that our new appropriation will bring our available funds to less than 7 cents per capita.

I wonder if you are aware of the fact that of our State tax dollar, 39 cents is dispensed for debt service, 20 cents for highways, 4 cents to eleemosynary institutions and pensions, 4 cents to other institutions, State and local, and for public health, 7-10 of one cent.

I also think in this connection that I should call your attention to the fact that it is now proposed to pay the directors of the divisions of our Department much less than that paid the Superior Court judges and less, even, than to solicitors for twenty-four weeks per year of work; definitely less than that which will be paid the Director of the Department of Purchases and Contracts, less than the salary of the Adjutant General, less than the Chairman of the Industrial Commission. It is unquestionably and undeniably true that more education and technical qualifications are required and the responsibilities of the directors of each of our divisions are easily equal those of the Superior Court judges, and greater than those of solicitors, the Director of the Bureau of Purchases and Contracts, or the Adjutant General.

The philosophy that all men have the heavenly right to live life more abundantly is in line with the trend of modern civilization. He who thinks otherwise is out of joint with the times.

Centuries ago the English people wrested from the Crown the so-called charter of English liberty; this, in effect, was the charter of Property liberty.

The years passed and our forebears challenged the proudest government of the earth and won American freedom; this, in effect, was Political freedom.

Unless I misinterpret current events we are now engaged in the third great contest for an advancing civilization—the right of man as above the right of property. Undoubtedly a social order is beginning which conceives human life as unquestionably superior to physical property in any form, and

which will undoubtedly suppress or radically modify any agency, custom or practice which does not evaluate humanity as being infinitely above things material.

Clearly the fight is on for human rights. In this struggle, and in its very forefront, comes the deep, social, human philosophy on which all public health service is builded, a service which takes more cognizance of the man than of the dollar.

I am pained at the necessity of reiterating my solemn warning of a year ago that a further reduction in our appropriations would so curtail our service that illness would surely increase.

Because of lack of funds we have been unable to secure the immunization of as many children against diphtheria as should be; and, therefore, we may expect an increase in this disease within the next eighteen months or two years.

General sanitation throughout the State is not commendably good. Typhoid fever has begun an upward turn. Whether the trend will be permanent or not remains to be seen. I fear that it will.

The ghosts of more morbidities and mortalities from other diseases stalk us constantly. In the presence of these probable advancements we find ourselves almost helpless because of insufficient funds.

Diseases of degeneration, including cancer, cardiac and renal affections, continue to mount. Pneumonia holds its place in the high brackets of the causes of death. Maternal mortality in North Carolina reflects no credit on any civilized state.

While I deeply regret all this, in fact regret it more than I can possibly express, I am a little comforted by the thought that these misfortunes are and will be due to no fault of the Department of Health. Be it known definitely and positively that it is fairly chargeable to the reduction in our appropriation, due and timely notice of which has been given through the press, from the platform and in private conversation.

I recall that a year ago, as your State Health Officer, I solemnly promised the taxpayers of North Carolina in all expenditures to be mindful of their conditions. The Department has kept this pledge. The love of our people for us is justified. We are determined to do nothing which will lessen their faith in us. We accept the depression as a challenge. These are fearful times. Fortunes have been dissipated; hopes have been blasted; hearts have been broken; homes wrecked everywhere; and all along the stream of Life suicides have been flung on the shore. Unafraid we go into the fight for North Carolina. Public Health is determined to live through the storm. We are facing it with high hopes and determined purposes. Proudly shall we walk the way of sacrifice because we know that we shall find our Holy Grail in the nobility of our service.

It has been reported that during the battle of Fredericksburg a Federal general succeeded in capturing a strategic point. From this elevation, shot and shell were poured into the Confederate ranks with a decimating and blasting effect. The battle seemed about to be lost. General Lee had flung brigade after brigade against the Federal lines and without success. In one final desperate effort he called to his side a great North Carolina general and asked him to save the army by taking the Federal lines. The Con-

federate general stepped in front of his North Carolina troops and said: "Steady! Steady now! North Carolina! Forward!"

He led his troops across the valley and up the storm-swept heights, and when the smoke of carnage had cleared away the Stars and Bars waved in triumph where before waved the Stars and Stripes, and another heroic chapter was written in the history of our great commonwealth.

The Old North State is a mighty State and it will live again. In the morning of its resurrection, which will be the beginning of the day of its renaissance, the Health Department and our physicians will be glorified because they held the State true to its course. We need now more than ever before, and more than anything else, to walk with unfaltering trust and unhesitating tread straight to the altar of our commonwealth and there rededicate our lives and receive a new baptism of love for each other and for our ideals.

North Carolina is the biggest and finest fifty-two thousand square miles on earth. It has a most varied climate, ranging from the semi-tropics of the southeast to the semi-frigid of the northwest. Its soil is as varied as its climate and rich beyond that of any other section of the world. It is strategically located; it is within eighteen hours of sixty per cent of the population of this, the greatest consuming nation on earth. It has more cotton mills than any other State of the Union and, save one, more spindles. It continues to hold the first or second place in many of the prime and basic industries. Within its ample folds it has the best people to be found anywhere. If there is a finer type of Negro than those who make up thirty-seven per cent of our population I have no knowledge of them. Into the veins of our white people there has poured the blood of the intrepid Frenchman, the fighting Irishman, the thrifty Scotchman, the bull-dog Englishman, and the unconquered Tenton, and out of this amalgamation there has emerged the very finest type of the human race, a type which appears to be God's most masterful effort in the creation of man.

And it is a land of beauty, too. God has studded our arching skies with diamonds from His own jewel box. He has perfumed our flowers with the attar of roses from the Garden of Eden. He has tinted our violets and pansies and hallowed them with a glory which defies all human competition, and He has used up His superabundance of colors in painting the glowing canvas of our west.

Our great past challenges us to renewed efforts and bespeaks a greater future. "Steady! Now, North Carolina!" Be ye not disconsolate, oh! my State. The day will break and we will live again.



## ANNUAL REPORT NORTH CAROLINA STATE BOARD OF HEALTH TO CONJOINT SESSION STATE MEDICAL SOCIETY, MAY 2, 1934

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By DR. JAMES M. PARROTT,  
*Secretary and State Health Officer*

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When I was elected State Health Officer I had been a physician for more than thirty-five years. During the major part of this time I was engaged in general practice, both town and country.

I looked in on the meeting of the State Medical Society the year I received my license—1895. I immediately joined, and, with the exception of 1898, I have not missed a session. In other words, I have answered the annual roll call this time, making thirty-seven years without a break. During this period I have been active in organized medicine and have given my best to it.

When I assumed the responsibility of State Health Officer I brought to the task a physician's heart. I know out of my experience, as well as by precept and example, the hopes, aspirations, ideals, and may I say prejudices, too, of the doctors of North Carolina. It is impossible for me to view the health service from any other angle than that of a man of medicine.

I am mindful of the history of the Health Department. At its organization session in 1849 the State Society provided for a section on Preventive Medicine and then began, in an organized way, the long, long fight to protect the health of the people of North Carolina. It was not until 1877 that the Medical Society succeeded in impressing the Legislature sufficiently to get any kind of financial recognition, and then only in an appropriation of \$100 a year for health work.

In 1879 the General Assembly created the Board of Health substantially along the lines as now constituted at the insistent request of the State Medical Society.

During all the years at no time has the appropriation by the General Assembly been sufficiently large to carry the financial burden of the Department of Health, and in a large measure this has fallen on the shoulders of the hard-pressed physicians of the commonwealth. Throughout the years our doctors have labored for this Department and have sustained its activities, fighting always like noble sons of Zeus against hell and death, ignorance and popular prejudice, too.

Thus the physicians of the State can rightly claim that the Department of Health is theirs, not by accident of discovery or the broad sword of gory conquest, but by the divine right of creation. However, it is yours to be administered for the public good and for the public weal alone.

The philosophy of public health is the philosophy of the physician—it is the philosophy of sacrifice and service. The Health Department is the crowning glory of the medical profession. It is the outstanding contribution of the physicians to the civilization of the commonwealth. Stripped of all its verbage, the New Deal is nothing more or less than the application of the



principles of the Golden Rule. Its foundation is the one on which the practice of medicine rests, so the New Deal to physicians is an ancient deal for which we have been fighting through all the centuries.

A few years ago a distinguished North Carolinian declared for the "right of the little man to live." That was fine. The medical profession, however, has always stood for and is still battling for the right of all men to live life more abundantly. The declaration that the medical profession is dedicated to humanity is not an idle boast. No man of merit has ever appealed to physicians in vain. Certainly the classic injunction "to thine own self be true," and the divine inspiration that one should begin at Jerusalem means that the physician should care for his own in a material sense, but it does not mean that the common good should be subverted to selfishness. For, to be sure, to give in intelligence and with an understanding heart is better than to receive in selfishness. More to be desired is it to walk the highways in poverty and in honor than to dwell in palaces in dishonor; and never must we permit the dollar mark to be substituted on our banner for the insignia Aesculapius.

I am happy to advise that your Health Department is carrying on despite obstacles, all sorts of discouragements, financial difficulties, popular prejudices, and doing its work in a great fine way, maintaining the tradition of the profession and serving mankind.

At this time allow me to remind you that organized medicine in North Carolina has always had, and now has, absolute control over and dictates the policies of the State Department of Health. This Society now has, and it has always had, a majority of the members of the Board, four of whom are elected by the Society, the others appointed by His Excellency. Our Governors, without exception, have recognized organized medicine, and have been glad to make appointments satisfactory to the members of this organization. So whatever shortcomings your Department of Health may have they are shortcomings of your own child, and it lies within your power, easily, to correct them. By the same token, when the Board of Health accomplishes great things, as it has and is now doing, it is, I am sure, your joy as well as privilege to give encouragement and to stand by. The responsibility of carrying the health service in North Carolina is your responsibility. You would not be rid of it if you could, and you cannot even if you would.

Opportunity for service belongs more to the medical profession than any other, and the opportunity brings with it corresponding responsibility. With this in mind, I now undertake to restate the principles which govern the present Board. The policies of this Department are:

(a) It is not a law enforcement agency and does not undertake to do so except under rare circumstances when the public good demands it.

(b) This is not a diagnostic agency or a curative agency, and does not do so except as a courtesy to the physicians or when public necessities require. These, of course, are unusual.

(c) In part only is this Department a health promotion agency. The Health Department can, and should, promote health up to a certain point, but when in its general scheme of promotion it reaches the treatment stage, even the responsibility for that rests with the doctors. I repeat an illustra-

tion which I have used before. It is our part to warn the expectant mother that certain symptoms may indicate serious conditions and that she should seek, under such circumstances, the advice of a physician. It is the physician's duty to walk with her through the valley of the shadow, and it is the part of the Health Department to meet her on the other side with helping hands, with kindly advice for herself and her offspring, that she may live a normal life and that the offspring may grow to be a good citizen.

(d) It is definitely the function of this Department to engage in preventive medicine; however, the health service does not think it has preoccupied this entire field. It is our thought that the physicians have a definite duty in this field, and that we should lead as the recognized agents of the medical profession for the good of humanity.

Parenthetically, let me say that when we speak of results which have been obtained, your Department of Health does not think that it has cornered the market in this great field, because we think that the physicians of North Carolina have played the major roll in reducing mortality in the commonwealth. We regard ourselves as those who should assume the responsibility of leadership only, but we have not the arrogance to assume, nor is it our desire to do so, that we are the whole show in preventing human sickness and in adding to the span of human life.

Since our last annual meeting the duties of the Department have increased and the resources of the Department have again decreased. We have only been able to carry on because of the remarkably fine and loyal faithfulness of the employees of the Department and the very sympathetic, constructive assistance and support given public health by the doctors of the commonwealth. I wish the people of North Carolina to understand definitely, and I proclaim it now, that the small appropriation and support which the State has and is now giving the Health Department is a mere bagatelle compared to the service which the commonwealth is getting, and that without the great masterful work which the physicians are doing, disease would ride rampant over North Carolina despite all efforts which the Health Department can render.

I find myself constantly amazed and thrilled at the efforts of doctors to care for the public good. I have never known a physician, in all my long and varied experience, who hesitated a moment in doing his duty even if it meant tremendous financial sacrifice and personal inconvenience; and danger, too, has not stayed the hands of the physicians. It's a great thing to answer the call of the country when the flags are flying, the bands are playing, and the whines of the death-carrying bullets are heard, when the world is standing by applauding efforts to save the nation's flag, but it is finer still and requires a higher degree of courage to quietly, unostentatiously, stimulated only by the thought of doing duty alone and unaided, to subject oneself to a highly dangerous disease, and in many instances a personal experiment, that a child may be saved. Such are modern Daniels come to the lions' den.

Physicians are a select group, standing head and shoulders in intelligence and achievement above any other group of our people. The prospective medical man must be a high school graduate to enter college, and he must do outstanding college work for not less than two years before he is selected as a medical student. Again, he must do outstanding work to be admitted

to a reputable medical school; and again, he must do outstanding work to receive proper internship; and, even after all this, he must be subjected to a re-selection by the State Board of Medical Examiners. In other words, the pick out of the best of the best! And, too, the physician is a man of remarkably high merits. So far as I know there is not a member in the penitentiary of North Carolina or on our roads. This cannot be said of any other calling, even the ministry, and it certainly cannot be said of our friends in the legal profession or our one-time barking friends. And, too, doctors are men of faith. It takes a great deal of patience and confidence and faith to battle on frequently against overwhelming obstacles for the altars of the home, the temples of the gods. It takes faith, faith of the highest order, the like of which I seriously doubt can be found in any other group.

Now, my friends, when an organization composed of men of outstanding intelligence, accomplishments; men of high purposes; men of outstanding character; men of great faith, put their shoulder to the wheels, the result is always for good. And so we should not be surprised—indeed, we would be disappointed—if your Health Department, dedicated by you to the commonwealth, fighting under God for humanity, should not accomplish and do great things.

Our experience continues to bear out the wisdom of your Board of Health when it set up in 1931 a very simple organization. We have not found it necessary to change it. From time to time we have only added to or subtracted from it to meet changing conditions.

#### DIVISIONAL ACTIVITIES

As heretofore, the Division of Administration continues to be headed up with the State Health Officer and to act as the clearing-house and central station of all the services.

The Division of Preventive Medicine continues to enlarge its service, despite a woeful lack of funds. This occasions no surprise because this vital service continues to be directed by the veteran in the service, the able Dr. G. M. Cooper. The amount of work which Dr. Cooper accomplishes is prodigious and may fairly be divided into four general divisions:

(A) HEALTH EDUCATION. It is no small task to edit our *Health Bulletin* and to keep it at the high standard which it has attained through the years. It has been accurately stated that, during the recent year, the newspapers of North Carolina have quoted more frequently from the *Health Bulletin* than at any previous similar time. With the assistance of Doctors Hamilton, Milam and Knox, Dr. Cooper has revised, re-written and provided a number of special publications. The demands for literature of a health character continue to increase, causing a corresponding increase of the burdens of this division.

Through the co-operation of Mrs. Highsmith, Executive Secretary and Editor of the publication of the North Carolina Federation of Women's Clubs, the assistance of that great organization in our educational work, particularly for maternity and infancy, has been secured and is rendering valuable service.

(B) PERSONAL CORRESPONDENCE. To this department is referred a vast number of letters coming to the Board, seeking information on every possible imaginable service and subject.

(C) **MATERNAL AND INFANT HYGIENE.** The work necessitated by this service is remarkable and the demand for literature on the subject has grown tremendously. Our people are being aroused as never before to the consciousness of the high infant and maternal death rate in our State. This public awakening is now demanding results in the way of reduction in mortality to at least the average throughout the country.

Dr. Cooper, with the assistance of others, during November and December held a series of group conferences in every section of the State with representative physicians. A central conference was held in the department in March, the results of which will be of undoubted benefit. To the physicians of the State who have responded so magnificently to the call of the department, we extend our sincerest appreciation.

Dr. Cooper has succeeded in placing in active service a number of nurses (known as Child Welfare Service Nurses) through the goodness of the U. S. Children's Bureau. While this service has of necessity been hastily organized and of a very temporary character, it will do untold good.

(D) **SCHOOL HEALTH SUPERVISION.** In September two additional nurses were employed, raising the number of staff nurses in this department to eight. As usual, this service is confined to school health supervision during the winter months and to work with midwives during the summer. The midwives, like the poor, will be with us always, and while we would like to be rid of them, we must realize that we are confronted with a practice rather than a theory and, therefore, we must undertake to make the best of a bad situation. This means that midwives must be properly instructed, particularly in what not to do. They must also be directed to see to it that a physician is consulted before labor begins, and that a physician must be called immediately upon the discovery of approaching danger signals. During the past summer the nurses instructed midwives in fifty-six counties and secured ordinances governing the practice of midwifery in these counties. In only one county was the service of the nurses declined by the local profession and that due entirely to a misunderstanding of the purposes and objectives.

There is no question but that the school work of these nurses has resulted in a vast amount of correctional work being done by the physicians in the State, and we are quite sure that the public now appreciates the importance of consulting their private physicians and that the physicians themselves appreciate the importance of this activity.

The Division of Sanitary Engineering is headed by Mr. Warren H. Booker. In addition to its usual and routine work, this division has had an unusual experience in that a large amount of CWA service has been carried by it. We should be justly proud of its outstanding accomplishment in the extension of rural sanitation and mosquito control and drainage service through the help of the CWA. Fortunately the State Administrator of the CWA has been very sympathetic and helpful and has been a mainstay through these trying months.

It was found necessary in order to carry the service on with a minimum amount of friction and a maximum of efficiency to transfer, temporarily, six or eight of our trained sanitarians to CWA work, and to appoint Mr. M. F. Trice as Assistant State Director for Community Sanitation and Mr. M. R.



Cowper as Assistant State Director for Mosquito Control Work. Mr. Trice has been with the Department for a number of years, and his good judgment and long experience proved the wisdom of his selection. Mr. Cowper, who had only been with the service a short time, had been trained extensively in mosquito control through the goodness of the Rockefeller Foundation, and, with his fine poise and excellent judgment, put over and continues to put over a good piece of work. The activities of these two men and their services cannot be adequately evaluated at this time. We know that the State is now more health-minded, that its sanitation has been tremendously improved, and that the great good which has been accomplished by community sanitation and mosquito control will continue undiminished through the years.

The Division of Laboratories is enlarging and improving. When our beloved Dr. Shore left us I thought that the Laboratory had reached its very highest possible point of efficiency and service, and certainly expected more or less recession. I am happy to report that under the direction of Dr. John H. Hamilton such has not taken place. Time does not permit a detailed discussion of the work of the laboratory. However, there are some phases of the work I feel it is necessary to mention. We have adopted the policy of gradually withdrawing laboratory service except for purely public health work, and will continue to do this as fast as the public good will permit. For example, I have thought that there are enough private laboratories in the State to take care of pathologic specimen examinations and have discontinued this. The time required in this work is now devoted to other activities.

If the people of North Carolina had to pay at retail prices for the service now rendered by the Laboratory it would cost the public more than a million and a quarter dollars annually, whereas the Laboratory is spending only about twenty-seven thousand dollars of the tax money annually. I definitely sounded the note in my report to this Conjoint Session a year ago that there would be no retreat in Laboratory services and that, instead of increasing charges for biologics, we would make an effort to reduce them and to furnish even more than we had been. This promise we have made good. We have, in my opinion, the greatest single state laboratory in the Union with the exception of only one. It must be kept, and so far as my ability goes, it shall be kept in at least its present high degree of service and efficiency.

I do recognize and sympathize with the conception of the commercial world that the laboratory should not compete with private enterprises, but until private enterprises become more reasonable in their charges the public weal needs the laboratory. Past experience has shown that when the laboratory cannot or does not produce biologics, the prices rise. There is a "whale" of a difference in the cost to the taxpayer of fifty cents which the laboratory charges for a given package of diphtheria antitoxin and \$2.25 which is the wholesale price charged by commercial houses. There is also a tremendous difference between the approximate estimated cost of full treatment of rabies at \$5 and the price charged by commercial houses wholesale at \$20.

The Department is cognizant of the fact that the individual should be compensated for his work, that an enterprise should receive a just and fair profit, but it does not believe that excessive charges should be made for



things that are essential for the public good or the treatment of disease. This Department says to all such, "Thus far shalt thou go, but no further; here shalt thy proud waves be stayed."

The Division of Oral Hygiene continues to be headed by the astute, masterful Branch. The dentists have rallied in a great way to his leadership in public health. With the heart of true professional men, and with a unanimity which might well be emulated, they have responded unselfishly and with devotion to his call. More than seven hundred of them gave of their services to a remarkably efficient degree in the general survey of certain groups of school children in the State, and their reports have poured into our office by the thousands. The findings of the survey will be of inestimable value to public health in North Carolina.

A year ago when our appropriation was cut it was freely predicted that the dental service would lose. However, Dr. Branch went into the field and sold his service to the public in such a great way that he now has sixteen dentists in his service paid from funds from outside sources. This is a remarkable achievement and deserves the highest commendation.

The Bureau of Epidemiology has been greatly improved during the year, and is now under the active direction of Dr. J. C. Knox, who, as most of you know, is a highly trained man specializing in this particular field of the great specialty of public health. The division has been unusually active during the past year; in fact I do not believe that it has rendered so much and such effective service in any one year in its previous history. Its activities may be grouped under four general divisions:

1. INVESTIGATION, including typhoid epidemics, Rocky Mountain spotted fever epidemics, malarial service, storm relief work, health surveys, expert advice to county health departments.

2. EDUCATIONAL ACTIVITIES, including the preparation of a volume of "Reviews of Certain Preventable Diseases," revision of eight of the "Facts" series booklets, preparation of rules regarding reportable diseases and particularly psittacosis, syllabus of county health department administration, radio talks, and numerous conferences requiring expert and technical epidemiological advice.

3. OFFICE ACTIVITIES, particularly the preparation of the Second Morbidity Report, tabulation of communicable disease reports daily, weekly, monthly and yearly, and the supplying of this information to the departments and services needing same, form letters on many subjects and correspondence regarding numerous health problems.

4. MISCELLANEOUS, visitors to the department, including medical students from Harvard, Vanderbilt and Johns Hopkins and others.

It is with deep regret that we anticipate the early removal by the International Health Board of Dr. Milam, who has been of such invaluable and outstanding service to us during the recent years and who is so well and so favorably known to many of you.

Dr. R. T. Stimpson, in his fine, quiet way, continues to handle the details of the Bureau of Vital Statistics in a most satisfactory way. He is vitalizing vital statistics, and the service is of more benefit at this time than ever before. It is difficult for us to understand how we got along without the services of this intelligent, hard working, practical gentleman.

A very determined effort is being made to improve the reporting of vital statistics. With this end in view, Dr. Stimpson has spent from ten days to two weeks out of every month in interviewing local registrars, physicians, undertakers, etc. Over half of the counties in the State have been visited, and it is expected to continue until all have been reached.

Regional Consultant William D. Riley continues his great syphilis campaign. His accomplishments, while of an investigating and preliminary character, are surprisingly good. During the year he has delivered many lectures and held many conferences. He is rapidly developing a plan which we hope to be able to put into operation for the ultimate practical control of syphilis. The outlook at this time is a pessimistic one, but we are moving forward with hope and confidence and trust that we can have something definite to offer in the way of a constructive program in the near future.

I am very happy to report that we have been able to persuade the Public Health Service to let Dr. M. V. Ziegler continue in our Department as an expert advisor and to specifically direct our county health activities. To our intense satisfaction, Dr. Ziegler has been able to maintain, in fact to slightly increase the amount of county health work in this State in spite of the depression and all sorts of unforeseen obstacles too numerous to mention. One of the bright spots in our Department is the increasing demand for local health work of a high class type and kind. The public is beginning to realize more than ever before that public health is a specialty in medicine and should be directed and handled by physicians specifically and especially trained just as for eye, ear, nose and throat, surgery, etc.

There are a number of counties not heretofore carrying full-time local health service that are ready to be organized on a full-time basis. The further development of new services has not been prosecuted energetically during the past year owing to the limited funds available from this office, and then too, it was thought advisable to lend every effort to continue existing services rather than to develop new services. With the improvement in the economic recovery, the demands for local health services are becoming more pressing and it is felt that this department should encourage the development of these services along county or district lines, particularly in view of the fact that 48.1 per cent of our rural population is without any type of full-time local health service.

While the general death rate in North Carolina was slightly lower for 1933 than for 1932, there are certain black spots. Diphtheria has shown a very definite increase and during the recent six months the number of cases have been twice as numerous as during the same period of the preceding year. This, of course, is in line with the prognostication which was made by this service a year ago. Had it not been for the unusual skill of North Carolina doctors, the mortality from diphtheria in North Carolina during this recent winter would have been appalling.

There has been no appreciable diminution in the death rate caused by cancer, heart disease and kidney disease in the recent year. I am optimistic enough to believe that these so-called diseases of degeneration can be reduced and they must be. In this I am buttressed by the recollection that twenty-five years ago we looked with a fatalistic attitude on tuberculosis and yet, within the recent sixteen years, the death rate from tuberculosis in

North Carolina has been cut more than one half. We must up and at them, me lads!

The maternity and infancy death rate per thousand is slightly lower but is far, far from being creditable. There are only seven states with a higher rate. Our maternity death rate is substantially thirty per cent higher than the average of the United States. The task to reduce this is an enormous one, it is almost insurmountable, but we have optimism and we have hope. The physicians in the State have taken hold of this matter in a great way, just as they have always done. Group meetings have been held with representatives selected and nominated by the representatives of organized medicine in various sections of the State, and these in turn have sent to the Department one of the number for a general conference. All this without compensation. I bet my old hat that if certain other professions which cry long and loud about their love for the commonwealth had done this, the State would have been presented with bills of no small proportion for consultation, advice and legal services rendered.

I am more and more impressed with the value of education in health work. This is a slow, tedious process. It is not spectacular. It has in it nothing of the grandstand, but it is lasting and permanent. It is the definite hope and purpose of the Health Department to stress the principles of public health through education with increased energy and power. For the immediate present, we are concentrating our efforts on the acute transmissible diseases, and maternal and infant morbidity and mortality. It would be a great thing if the people of North Carolina could be educated about the value of proper immunization to the point of having the children properly immunized at the proper ages as a matter of family routine. I will hail the day with real joy when our people are so impressed with this that the immunization campaigns may be no longer necessary. However, it appears now that we have not yet reached that point throughout the State and that it will continue to be necessary to put on such campaigns from time to time. It is my hope and thought that we can gradually withdraw from this, and will do so as rapidly as the public good will permit.

The Department of Health recognizes the duties and responsibilities of the medical profession in this field of work, and it is the sincere desire of this service that the doctors will continue to cooperate with us in the same fine, unselfish way which they have done in the past. The control of diphtheria by immunization offers far and away the major value. Since this is true, certainly it is the responsibility of a health service to press such immunization. On the other hand, the physicians also have a duty here and we crave that our doctors will be aggressive in this matter. I believe that it would be a part of wisdom for the State Medical Society to appoint a permanent committee on immunization to work out plans with the State Board for immunization services. This appears to be particularly important in view of the fact that a scheme which would be practical in one county or section would not be satisfactory to another. The committee on immunization should have elastic authority so that it can meet all local needs and requirements.

I trust that this section of the State Society will also appoint or continue the present semi-official committee which is functioning in connection with

the public health work for the reduction of maternal and infant mortality and morbidity. The semi-official committee which is now serving has been of very great value and if it were continued in an official way by this body, it would be of outstanding service both to the public and to the doctors.

Sometimes I wonder if we are not already approaching quite closely to the irreducible minimum for certain types of diseases, and I am certain that in the future we shall have to get a reduction in the number of deaths by attacking those diseases, like the diseases of degeneration, more vigorously than ever before. My own thought is that we have now come to the time when we must give more attention to morbidity. In the abstract, it is of doubtful value to save a life which, after being saved, cannot support itself because of physical disabilities. Certainly, it is more challenging not only to save the life but to restore it to a normal health condition so that it may carry on with reasonable efficiency. I believe that a reduction in morbidity in the early years of life would be reflected in a reduction in mortality from degenerative diseases in the latter stages of life. In 1890 the life expectancy of a child ten years of age was 48½ years; in 1930 it was more than 55 years. In 1890 the life expectancy of a person sixty years of age was 14 years and 9 months; in 1930 it was 14 years and 5 months. These figures give cause for very serious consideration and most intensive thought. In their final analysis, they simply mean that we have improved conditions up to sixty years of age, but have lost ground from sixty on. It is estimated by statisticians that an average life of a mammalian is five times that of the growing period. Since the average human being does not complete growth until approximately twenty-five years of age by the rule of average for mammals, a man's average age should be not less than 125. It is up to us to make life as safe for man as for beast.

While extremely interesting and most valuable, a further study of longevity is prohibited right now by our limited time. I cannot restrain myself, however, from calling attention to the fact that in the first five year period of this century, tuberculosis led all other diseases by a large margin with a tremendously high death rate. In the period 1925 to 1929, this disease fell to sixth in rank with a death rate not greatly in excess of one-third of the earlier figure. Even the most optimistic interpreters of statistics hold definitely to the view that we have not reduced the death rate from degenerative diseases, and that in a definite number there has been an increase.

A reduction in morbidity will require more highly trained public health specialists than we now have, but this need not be a deterrent factor for these trained specialists may be developed.

After giving the matter careful thought and study through a period of more than two years, I have come to the definite conclusion that the State of North Carolina should recognize the fact that public health is a State-wide function and that the State should assume financial and directional responsibility for the same in a large and high degree, keeping in mind the preservation of the fundamental principles of local self-government and the varying necessities of the many sections and requirements of the commonwealth.

Disease knows no county boundary line, but the problems of the mountains in a practical way are quite different from the problems of the sea-coast.



And, too, North Carolinians are individualistic fundamentally, and I trust they will always remain so. However, individualism runs to seed when it forgets and neglects the common good and overlooks the value and importance of cooperation. Many communities in North Carolina, indeed whole counties and groups of counties in the State, are utterly unable to provide for themselves even a minimum health service. Here the State has a definite duty and an inescapable responsibility. I do not believe that it is now practical, if indeed wise, for the State to take over all health work and administer it from a central office. At least, I am now opposed to this. However, I do believe that the State should set up, maintain and support in a central department, such as we now have, adequate provisions for intelligent supervision, co-ordination, inter-section and inter-county protection and for the vitally important purposes of seeing to it that local health services are manned by trained experts and do not become local political footballs to be kicked about and traded on by local designers.

Strongly do I urge that the State should not only continue its present Department of Health as it is, with certain needed minor changes, but should set aside an adequate fund to properly aid counties or districts, to be known as a State Aid Fund for health, and to be limited in the proper ratio, keeping in mind the definite local necessities and requirements. This fund should be allocated on the basis of county or district necessities, with proper provision for the protection of the fund on the one side by the State through its Health Department against inefficiency and extravagance, and the maintenance on the other hand of fundamental principles of local self-government. The details of such a plan can, of course, be easily worked out and should be done with the definite thought that there will be no leveling down of present highly efficient county and district health services, but there should be a leveling up by providing health departments where none now exist or where existing ones are inadequate and inefficient.

In conclusion, permit me to say that we shall fight to maintain the advanced positions which we now hold and to consolidate them. We will emphasize the value of health education. We will press forward along constructive lines with the proper immunizations against certain acute diseases. We will carry on in a greater way than ever before to reduce maternal and infant deaths and morbidity in the State to the end that a child may find it just a little safer to be born in North Carolina than it was to serve in the front ranks with the heroes who wrote that great chapter in American history on the soil of France, and that the mothers shall not be penalized with their lives or loss of their health by bringing into the world the future North Carolinians.

It is extremely difficult, if not impossible, and too, is it desirable that we think of public health in terms of its material values? It seems to me as I contemplate it all that it is debasing to do this. I prefer rather to think of it as North Carolina's greatest, most basic, spiritual activity; for it is a spiritual, and in this I take comfort because I know that I have, and my colleagues have, dedicated their lives to an imperishable service.

I give you a story: In the long ago in a far eastern country there lived a great king. He was a mighty man of war. He pushed the frontiers of his empire to the uttermost parts of the known world, and after he had ac-



complished it all, he determined to build for himself an imperishable monument and to gird himself about against all enemies that his soul might rest itself in peace and his body be given to its pleasure. He brought from all parts of his great kingdom the imperishable granite and the everlasting cedars, and he had the most skillful of his builders to construct around his capital city a vast wall which could not be broken. He chose of his best artisans and most experienced planners those to build his palace, and this he did with the best of everything; and studded it and finished it with the most expensive jewels and costly metal, and he surrounded this with an unbreakable wall. He selected of his vast armies the finest of his troops to man the ramparts of his city. He selected of these the choicest and placed them in his palace; and then he gave himself up to riotous living, enjoying a sense of false security, happy in the belief that his city could not be taken nor could his palace be destroyed. But the enemy came, changed the course of the river, marched on dry land under the wall, fell on his drunken soldiers, slaughtered them and destroyed his city, tore down its walls and took him captive; and now only the explorer has been able to find but a small part of his great city.

A time after the fall of this mighty emperor, who based his all on the materials, there appeared in another land a humble Jew, a member of a despised and persecuted race, without a common country or a common flag, and in slavery, mastered by a more powerful people. He taught spiritual values. He appealed to the finer things in man. He held up a new hope and a higher purpose. Property to him was of secondary importance. The soul of man was his primary object. He walked, to be sure, to the outer gate and up the hill and fell on sleep on the cross; poor, despised and forsaken; but today His life is the most powerful factor in this world and His command is the command of the ages. He properly valued spirituals.

With something of this thought in my own mind, I gain courage and take new hope when I am reminded that there are thousands of people alive today and enjoying life's richest blessings, and thousands of homes preserved that otherwise would have been destroyed were it not for the great spiritual services which the public health department and the doctors of North Carolina have rendered, and under God, purpose to continue to render, carping critics to the contrary notwithstanding.



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